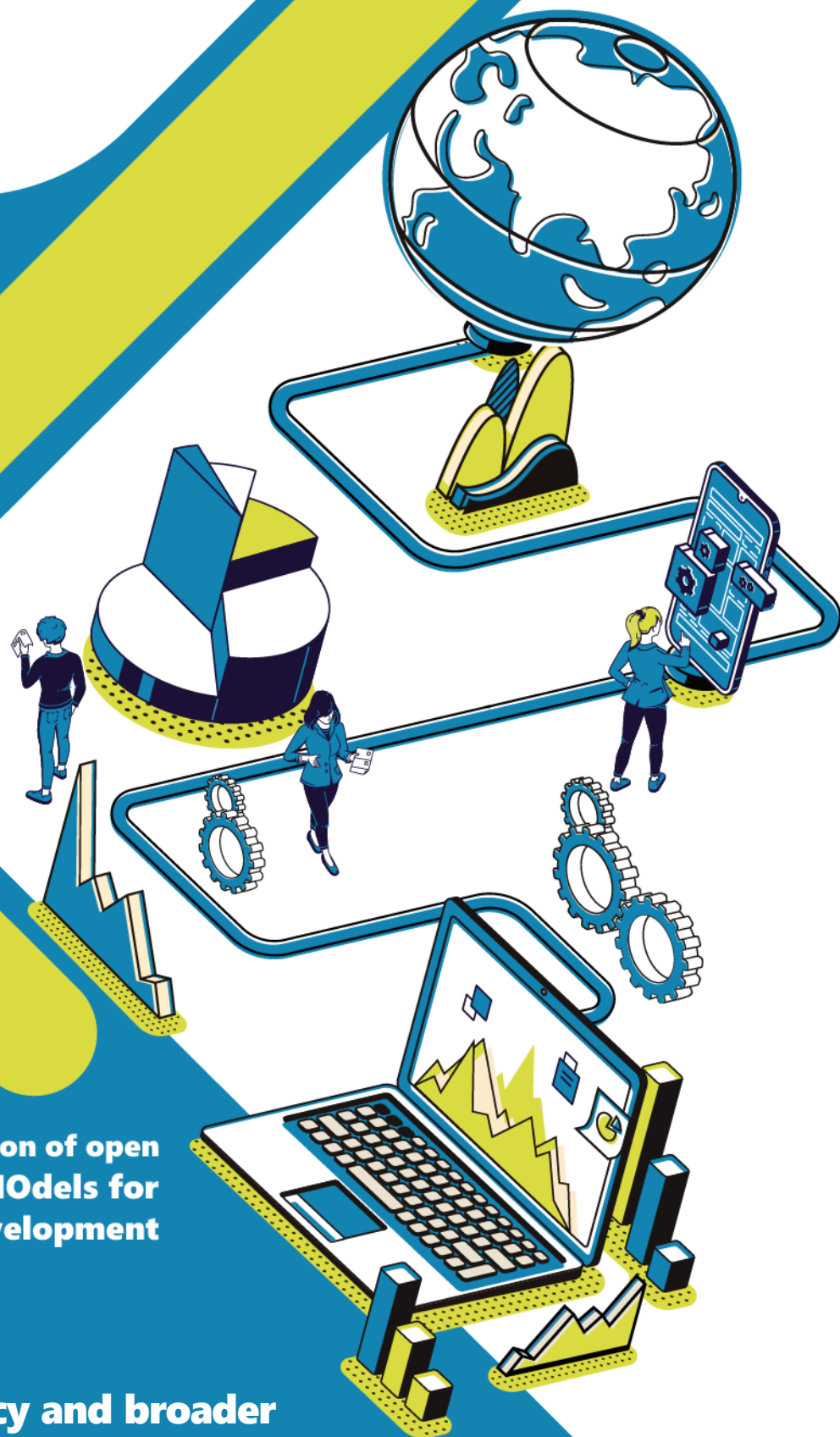




**Delivering the next generation of open  
Integrated Assessment MOdels for  
Net-zero, sustainable Development**

## **D7.5 – Academic, policy and broader societal outreach**

WP7 – Communicate, Disseminate & Exploit

28/11/2024



Funded by  
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| Project Coordinator    | Institute of Communications and Computer Systems - ICCS                                                   |               |                         |            |
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| Responsible Author     | Anastasios Karamaneas                                                                                     | Email         | akaramaneas@epu.ntua.gr |            |
|                        | ICCS                                                                                                      | Phone         | +30 210 772 3612        |            |
| Contributors           | Konstantinos Koasidis (ICCS)                                                                              |               |                         |            |
| Reviewer(s)            | Alexandros Nikas (ICCS)                                                                                   |               |                         |            |
| Keywords               | Scientific publications; outreach; press; policy briefs; conferences; infographics                        |               |                         |            |

## EC Summary Requirements

### 1. Changes with respect to the DoA

No changes with respect to the work described in the DoA.

### 2. Dissemination and uptake

This deliverable can be a point of reference for any individual or organisation interested in DIAMOND's scientific, policy and broader societal outreach, containing information on the project's scientific publications in high-impact scientific journals, posters and presentations in scientific conferences, as well as other types of material and media publications such as policy briefs, infographics, press releases, etc. that may interest various policymakers and stakeholders, who intend to be familiar with the project's scientific, policy, and societal outcomes.

### 3. Short summary of results (<250 words)

In order to reach scientific and policy audiences, DIAMOND is sharing its accumulated knowledge and scientific insights in multiple conferences and high-impact journals. Moreover, to facilitate the project's aim to inform policy choices, a set of commentaries and articles displaying the project's scientific outcomes are published in various media outlets for policymakers, businesses, civil society actors, and other stakeholders. In the same context, DIAMOND has created a set of infographics to further disseminate its scientific and policy outputs on social media.

By November 2024, DIAMOND has published 16 scientific publications in high-impact journals as well as 27 papers/posters/presentations in scientific conferences. Moreover, it has produced 5 press releases and 7 newsletters to boost its policy outreach. In a broader context, in an endeavour to inform a wider audience on environmental, biodiversity, energy, and sustainability issues related to the project, the consortium has engaged in communicating scientific insights in multiple media outlets and social media, a series of infographics, and one article in the press. Finally, project partners have represented the project in 7 policy/stakeholder engagement events and workshops, to maximise the project's outreach and enhance mutual learning and cooperation.

### 4. Evidence of accomplishment

This report, DIAMOND's scientific publications (as listed in the following sections), other elements in the links demonstrated in the following sections (the website, in press, etc.) as well as the following project website links:

- DIAMOND scientific publications ([Website link](#))
- DIAMOND conference posters/presentations ([Website link](#))
- DIAMOND newsletters and press releases ([Website link](#))
- DIAMOND infographics ([Website Link](#))
- DIAMOND press communications ([Website link](#))

## Preface

DIAMOND will update, upgrade, and fully open six Integrated Assessment Models (IAMs) that are emblematic in scientific and policy processes, improving their sectoral and technological detail, spatiotemporal resolution, and geographic granularity. It will further enhance modelling capacity to assess the feasibility and desirability of Paris-compliant mitigation pathways, their interplay with adaptation, circular economy, and other SDGs, their distributional and equity effects, and their resilience to extremes, as well as robust risk management and investment strategies. This will be done via integration of tools and insights from psychology, finance research, behavioural and labour economics, operational research, and physical science. The project will develop a transdisciplinary scientific approach to legitimise the implementation process and co-create research questions that stretch the frontiers of climate science, as well as establish vibrant communities of practice to transparently open model enhancements and to develop capacities, thereby lowering the entrance barriers to the established IAM community.

|          |                                                                                  |    |
|----------|----------------------------------------------------------------------------------|----|
| ICCS     | INSTITUTE OF COMMUNICATIONS AND COMPUTER SYSTEMS                                 | EL |
| BC3      | ASOCIACION BC3 BASQUE CENTRE FOR CLIMATE CHANGE - KLIMA ALDAKETA IKERGA          | ES |
| CESAR    | KRATENA KURT                                                                     | AT |
| CICERO   | CICERO SENTER FOR KLIMAFORSKNING                                                 | NO |
| CYI      | THE CYPRUS INSTITUTE                                                             | CY |
| E4SMA    | ENERGY ENGINEERING ECONOMIC ENVIRONMENT SYSTEMS MODELING AND ANALYSIS SRL        | IT |
| HOLISTIC | HOLISTIC IKE                                                                     | EL |
| COMILLAS | UNIVERSIDAD PONTIFICIA COMILLAS                                                  | ES |
| ISINNOVA | ISTITUTO DI STUDI PER L'INTEGRAZIONE DEI SISTEMI (I.S.I.S) - SOCIETA'COOPERATIVA | IT |
| SEURECO  | SEURECO SOCIETE EUROPEENNE D'ECONOMIE SARL                                       | FR |
| UM       | UNIVERSITEIT MAASTRICHT                                                          | NL |
| ESMIA    | ESMIA CONSULTANTS INC.                                                           | CA |
| USMF     | THE UNIVERSITY OF MARYLAND FOUNDATION INC                                        | US |
| UMD      | UNIVERSITY OF MARYLAND                                                           | US |
| EPFL     | ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE                                         | CH |
| ETH      | EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH                                    | CH |
| UNIBAS   | UNIVERSITAT BASEL                                                                | CH |
| Imperial | IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE                              | UK |
| Oxford   | THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD                 | UK |
| UCL      | UNIVERSITY COLLEGE LONDON                                                        | UK |



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E4SMA



ISINNOVA  
research innovation sustainability

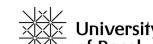


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Imperial College London



## Executive Summary

DIAMOND actively engages in disseminating its scientific outcomes in multiple highly esteemed scientific journals and conferences to inform stakeholders on the upgrade and enhancement of six widely used Integrated Assessment Models (IAMs) as well as to communicate accumulated knowledge for scientific progress. Moreover, in its endeavour to produce advanced climate-economy models, inform policy choices, boost international and interdisciplinary cooperation, enhance mutual learning, and ensure comprehensibility of modelling information by all types of stakeholders, the project participates in numerous events as well as publishes infographics, posts in the project's social media accounts, and articles/commentaries in non-scientific media outlets.

About 2 years into its lifetime, DIAMOND has produced 16 research papers in high-impact journals and 27 posters/papers/presentations at scientific conferences. In regard to its policy outreach, the project has produced 5 press releases and 7 newsletters. In addition, in an endeavour to communicate project outcomes with wider audiences and all types of stakeholders, the project has published a series of infographics and 1 article in media outlets. Lastly, project partners have participated in 7 policy and stakeholder engagement events and workshops, in order to maximise the outreach of the project's insights.

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# 1 Introduction

The scientific, policy, and broader societal outreach of DIAMOND targets a diversity of stakeholder groups all around the world, including but not limited to policymakers, businesses, citizens, researchers in relevant Horizon 2020 and Horizon Europe projects, modelling consortia orienting their work toward IAM development and use in support of climate policymaking, and broader research communities focusing on all issues related to climate mitigation, sustainable development, energy, biodiversity.

One of the main outputs of DIAMOND is the expansion and enhancement of six widely established Integrated Assessment Models (IAMs) aiming to examine a multitude of aspects related to climate action as well as overall sustainability. The project also aims to explore the linkages of these six IAMs with an ensemble of other models, modules, or domain-specific tools to further expand their capacity and help cover issues that are normally hard to tackle from a single economic modelling perspective. To achieve this, DIAMOND has established a transdisciplinary framework for multi-model analysis that revolves around stakeholder engagement, aiming to ensure the policy and societal relevance and pertinence of the new modelling capabilities and insights produced.

With as an ambitious work programme and intended impact, DIAMOND seeks to ensure a wide outreach of its activities in both the policy world and the scientific community.

As of November 2024, the project has published 16 scientific papers in high-impact journals (such as Nature Energy and Joule) and 27 posters/papers/sessions in academic conferences (including the high-profile IAM-related conferences, such as the IAMC and ECEMP meetings). Additionally, to increase its policy outreach, the project has disseminated 5 press releases and 7 newsletters. Targeting wider audiences and stakeholders at all levels, the consortium has also engaged in publishing commentaries/articles in media outlets and infographics in social media. Moreover, project partners have hitherto represented the project in 8 policy, stakeholder engagement, and other events and workshops.

Sections 2 and 3 outline the DIAMOND project's 16 scientific papers and 27 posters/papers/presentations in conferences. Section 4 lists the project's newsletters and press releases that have been shared with interested parties, while Section 5 presents all events that project partners have organised or represented the project in. Finally, Sections 6-7 demonstrate the project's media outreach in the form of articles/commentaries and a series of infographics disseminated on social media, respectively.

## 2 List of scientific publications in peer-reviewed journals

This section lists all scientific papers published in the framework of the DIAMOND project, including the title, abstract, authors (the institutes of DIAMOND partners are mentioned in parentheses) and any synergies with other consortia funded by the EC or other funding sources.

### 2.1 Cassetti et al. (2023), Renewable & Sustainable Energy Transition

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Reinforcing the Paris Agreement: Ambitious scenarios for the decarbonisation of the Central Asian and Caspian region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Authors:        | Gabriele Cassetti (E4SMA), Alessia Elia (E4SMA), Maurizio Gargiulo (E4SMA), Alessandro Chiodi (E4SMA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Journal:        | Renewable & Sustainable Energy Transition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Abstract:       | For its abundant fossil resources, the Central Asia and Caspian region plays a strategic role in the energy security of major markets, such as Europe and China. However, this dependence on export, added to a firm reliance on fossil fuels for internal consumption, represents a significant challenge for the decarbonisation of the region. In this paper, we perform an energy scenario analysis of four countries in the region (Azerbaijan, Kazakhstan, Uzbekistan and Turkmenistan), aiming to investigate how ambitious their regional decarbonisation targets for 2050 are in view of the Paris Agreement. We also develop a net-zero emission pathway to reinforce the regional climate ambition in the long term. As a novelty in the literature, the scenario analysis is co-designed with regional stakeholders through an engagement process that we have carried out from December 2020 to May 2021. The analysis is performed with the TIMES-CAC energy system model. Results show that current regional energy policies are insufficient for achieving ambitious climate targets in the long term (2050 and beyond). The lack of a long-term strategy to decrease the dependence on export increases the influence of importing countries' energy policies. Even in a decarbonised scenario, the role of China remains significant, while the dependence on the European Union decreases. To limit the pressure from other countries in the energy transition, the region should start implementing a rigorous energy planning process today to fill the "ambition gap" and achieve carbon neutrality in a 40-year horizon. |
| Keywords:       | Paris Agreement; Central Asia; Caspian; decarbonisation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DOI:            | <a href="https://doi.org/10.1016/j.rset.2023.100048">https://doi.org/10.1016/j.rset.2023.100048</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Repository:     | Zenodo (Link: <a href="https://zenodo.org/record/7982082">https://zenodo.org/record/7982082</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Citation (APA): | Cassetti, G., Elia, A., Gargiulo, M., & Chiodi, A. (2023). Reinforcing the Paris Agreement: Ambitious scenarios for the decarbonisation of the Central Asian and Caspian region.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

Renewable and Sustainable Energy Transition, 3, 100048.



Renewable and Sustainable Energy Transition

Volume 3, August 2023, 100048



# Reinforcing the Paris Agreement: Ambitious scenarios for the decarbonisation of the Central Asian and Caspian region

Gabriele Cassetti , Alessia Elia, Maurizio Gargiulo, Alessandro Chiodi

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## Highlights

- Growing strategic role of the region in the energy security of major markets, such as Europe and China.
- Investigation of the gap between current targets and a sustainable energy transition.
- Regional stakeholder engagement and decarbonisation scenarios co-design.
- Need for a long-term strategy to reduce the influence of importing countries' energy policies.

**Figure 1.** Preview of 'Reinforcing the Paris Agreement: Ambitious scenarios for the decarbonisation of the Central Asian and Caspian region' in Renewable & Sustainable Energy Transition

## 2.2 Perdana & Vielle (2023), Environmental Economics and Policy Studies

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Carbon border adjustment mechanism in the transition to net-zero emissions: collective implementation and distributional impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Authors:        | Sigit Perdana (EPFL), Marc Vielle (EPFL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Journal:        | Environmental Economics and Policy Studies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Abstract:       | As an instrument to minimize carbon leakage, the effects and feasibility of Carbon Border Adjustments Mechanism (CBAM) will depend on multiple design options. While the EU has committed to introducing CBAM as part of its green climate deal, pursuing climate efforts to successfully limit global warming requires a collective implementation involving major emitters China and the US. This paper quantifies the distributional impacts of a joint CBAM implementation of in a climate alliance or a club of the EU, the US, and China. Differing from a myriad of studies that focus on unilateral CBAM, this analysis emphasizes collective implications on leakage, sectoral competitiveness, and welfare by projecting climate neutrality relative to current policies and climate targets. Our findings confirm that coalition reduces leakage, improves production on energy-intensive industries, and increases club's welfare relative to a non-CBAM and a unilateral implementation. These are in contrast with some unilateral analytical studies, especially for the US. It is further proof of the potential of CBAM as collective instruments to facilitate mitigation and trade competitiveness. |
| Keywords:       | CBAM; net-zero emissions; distributional impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| DOI:            | <a href="https://doi.org/10.1007/s10018-023-00361-5">https://doi.org/10.1007/s10018-023-00361-5</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| First Online:   | 18 February 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Repository:     | Zenodo ( <a href="https://zenodo.org/record/7981970">https://zenodo.org/record/7981970</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Citation (APA): | Perdana, S., & Vielle, M. (2023). Carbon border adjustment mechanism in the transition to net-zero emissions: Collective implementation and distributional impacts. <i>Environmental Economics and Policy Studies</i> , 25(3), 299-329.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

# Carbon border adjustment mechanism in the transition to net-zero emissions: collective implementation and distributional impacts

Research Article | Open access | Published: 18 February 2023  
Volume 25, pages 299–329, (2023) Cite this article

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## Abstract

As an instrument to minimize carbon leakage, the effects and feasibility of Carbon Border Adjustments Mechanism (CBAM) will depend on multiple design options. While the EU has committed to introducing CBAM as part of its green climate deal, pursuing climate efforts to successfully limit global warming requires a collective implementation involving major emitters China and the US. This paper quantifies the distributional impacts of a joint CBAM implementation of in a climate alliance or a club of the EU, the US, and China. Differing from a myriad of studies that focus on unilateral CBAM, this analysis emphasizes collective implications on leakage, sectoral competitiveness, and welfare by projecting climate neutrality relative to current policies and climate targets. Our findings confirm that

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Sections

Figures

References

Abstract

Introduction

Literature review

The GEMINI-E3 model

Scenario development, numerical result and ana...

Conclusion

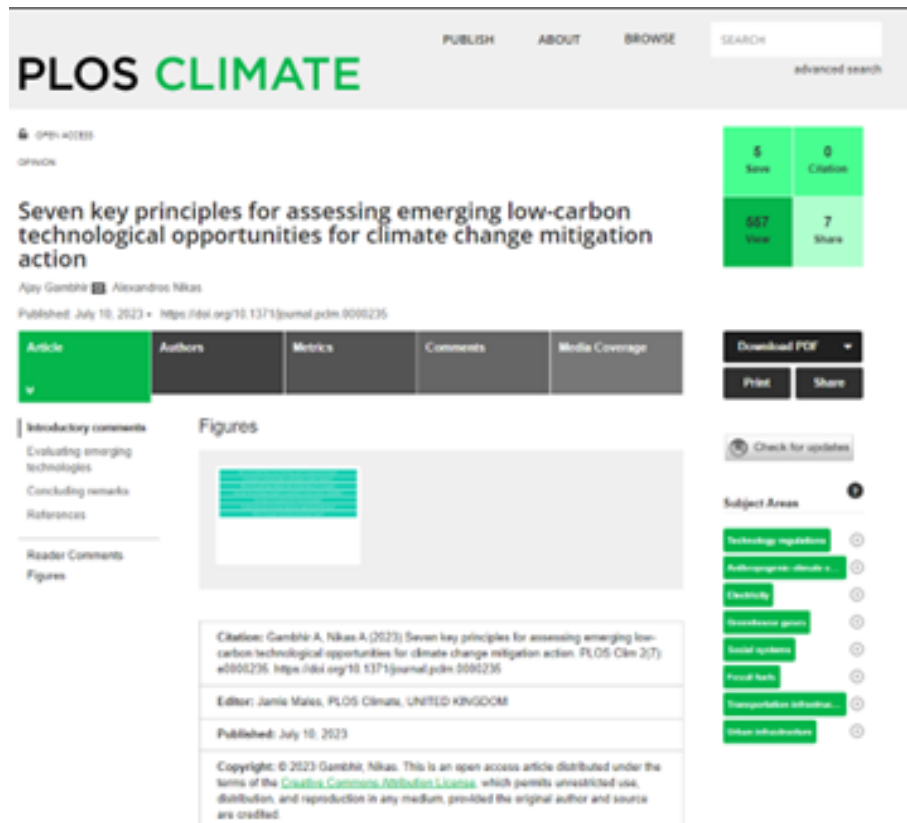
Data availability

Notes

**Figure 2.** Preview of 'Carbon border adjustment mechanism in the transition to net-zero emissions: collective implementation and distributional impacts' in Environmental Economics and Policy Studies

## 2.3 Gambhir & Nikas (2023), PLOS Climate

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Seven key principles for assessing emerging low-carbon technological opportunities for climate change mitigation action                                                                                                                                                                                                                                                                                                                                                                                                     |
| Authors:        | Ajay Gambhir (Imperial), Alexandros Nikas (ICCS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Journal:        | PLOS Climate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Abstract:       | The proposed framework is an intuitively obvious one, yet still serves as a climate technology-specific “checklist” to ensure that any newly proposed technologies or products can succeed. There will be continuous changes to the regulations, infrastructures, and political contexts, in which new technologies will be developed, which is why each consideration is not intended as a one-shot “yes/no” process but must rather be continuously reviewed and reconsidered in light of potentially rapid developments. |
| Keywords:       | Low-carbon; climate change mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| DOI:            | <a href="https://doi.org/10.1371/journal.pclm.0000235">https://doi.org/10.1371/journal.pclm.0000235</a>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| First Online:   | 10 July 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/8183549">https://zenodo.org/records/8183549</a> )                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Synergies with: | HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Citation (APA): | Gambhir, A., & Nikas, A. (2023). Seven key principles for assessing emerging low-carbon technological opportunities for climate change mitigation action. PLOS Climate, 2(7), e0000235.                                                                                                                                                                                                                                                                                                                                     |



**Figure 3.** Preview of 'Seven key principles for assessing emerging low-carbon technological opportunities for climate change mitigation action' in PLOS Climate

## 2.4 Koutsellis et al. (2023), SoftwareX

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | In-Cognitive: A web-based Python application for fuzzy cognitive map design, simulation, and uncertainty analysis based on the Monte Carlo method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Authors:        | Themistoklis Koutsellis, Georgios Xexakis (HOLISTIC), Konstantinos Koasidis (ICCS), Natasha Frilingou (ICCS), Anastasios Karamaneas (ICCS), Alexandros Nikas (ICCS), Haris Doukas (ICCS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Journal:        | SoftwareX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Abstract:       | Fuzzy Cognitive Mapping is a semi-quantitative modelling method, widely used for decision support in various domains. However, existing software applications have been criticised over inadequate handling of uncertain information, lack of accessibility, and inability to converge to solutions for all modelled systems. Here we present In-Cognitive, an open-source, web-based application for the creation, visualisation, and simulation of Fuzzy Cognitive Maps, ensuring solution convergence and allowing for Monte Carlo uncertainty analysis. The application is built in Python and Bokeh and provides an accessible and user-friendly interface to model various systems quickly and reliably and evaluate the robustness of the modelling solutions. |
| Keywords:       | Fuzzy cognitive map; Web application; Uncertainty propagation; Monte Carlo approach                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| DOI:            | <a href="https://doi.org/10.1016/j.softx.2023.101513">https://doi.org/10.1016/j.softx.2023.101513</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| First Online:   | 30 August 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/10069255">https://zenodo.org/records/10069255</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Citation (APA): | Koutsellis, T., Xexakis, G., Koasidis, K., Frilingou, N., Karamaneas, A., Nikas, A., & Doukas, H. (2023). In-Cognitive: A web-based Python application for fuzzy cognitive map design, simulation, and uncertainty analysis based on the Monte Carlo method. <i>SoftwareX</i> , 23, 101513.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



SoftwareX  
Volume 23, July 2023, 101513



Original software publication

## In-Cognitive: A web-based Python application for fuzzy cognitive map design, simulation, and uncertainty analysis based on the Monte Carlo method

Themistoklis Koutsellis <sup>a</sup> , Georgios Xexakis <sup>b</sup> , Konstantinos Koasidis <sup>a</sup> ,  
Natasha Frilingou <sup>a</sup> , Anastasios Karamaneas <sup>a</sup> , Alexandros Nikas <sup>a</sup> , Haris Doukas <sup>a</sup>

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### Abstract

Fuzzy Cognitive Mapping is a semi-quantitative modelling method, widely used for decision support in various domains. However, existing software applications have been criticised over inadequate handling of uncertain information, lack of accessibility, and inability to converge to solutions for all modelled systems. Here we present In-Cognitive, an open-source, web-based application for the creation, visualisation, and simulation of Fuzzy Cognitive Maps, ensuring solution convergence and allowing for Monte Carlo uncertainty analysis. The application is built in Python and Bokeh and provides an accessible and user-friendly interface to model various systems quickly and reliably and

**Figure 4.** Preview of 'In-Cognitive: A web-based Python application for fuzzy cognitive map design, simulation, and uncertainty analysis based on the Monte Carlo method' in SoftwareX

## 2.5 Bailie et al. (2023), Renewable and Sustainable Energy Transition

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Co-creating Canada's path to net-zero: a stakeholder-driven modelling analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Authors:        | Alison Bailie (ESMIA), Marie Pied (ESMIA), Kathleen Vaillancourt (ESMIA), Olivier Bahn Konstantinos Koasidis (ICCS), Ajay Gambhir (Imperial) Jakob Wachsmuth, Philine Warnke, Ben McWilliams, Haris Doukas (ICCS), Alexandros Nikas (ICCS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Journal:        | Renewable and Sustainable Energy Transition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Abstract:       | Canada has pledged ambitious emission targets, aiming to achieve a reduction of at least 40–45% below 2005 levels by 2030 and net-zero emissions by 2050. Being amongst the major economies with high dependence on fossil fuels, however, this path is far from straightforward. This research employs NATEM, a TIMES-based regional energy system model for North America with explicit representation of Canada, as well as knowledge produced and shared by stakeholders during a targeted workshop dedicated to identifying decarbonisation bottlenecks, to compare the paths to net zero on the basis of whether stakeholder perceptions are considered or not. We find that the path to net-zero is technically feasible but critically entails the use of negative emissions technologies, like (bioenergy with) carbon capture and storage (CCS) and direct air capture, in addition to the large-scale deployment of a large range of mitigation options already available today. Based on the feedback received from the stakeholders, around both the use of CCS-based technologies and the potential of demand-side measures such as modal shifts in transportation and better urban planning, we impose a set of additional conditions and restrictions. We find that the co-created net-zero pathway is also technically feasible while relying less on technologies that may trigger bottlenecks prioritised by the stakeholders; notably, despite yielding a similar emissions trajectory, it entails significantly different sectoral and technological configurations to the non-co-created net-zero scenario, requiring an acceleration of near-term abatement measures, mainly through electrification and quicker rollout of renewable and other clean energy technologies. |
| Keywords:       | Canada; Energy modelling; Stakeholder engagement; Co-creation; Net-zero; Climate policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DOI:            | <a href="https://doi.org/10.1016/j.rset.2023.100061">https://doi.org/10.1016/j.rset.2023.100061</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| First Online:   | 7 August 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/10069307">https://zenodo.org/records/10069307</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Citation (APA): | Bailie, A., Pied, M., Vaillancourt, K., Bahn, O., Koasidis, K., Gambhir, A., ... & Nikas, A. (2023). Co-creating Canada's path to net-zero: a stakeholder-driven modelling analysis. <i>Renewable and Sustainable Energy Transition</i> , 4, 100061.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



Renewable and Sustainable Energy Transition

Volume 4, August 2023, 100061



Full-length article

## Co-creating Canada's path to net-zero: a stakeholder-driven modelling analysis

Alison Bailie <sup>a</sup>, Marie Pied <sup>a</sup>, Kathleen Vaillancourt <sup>a</sup>, Olivier Bahn <sup>b</sup>, Konstantinos Koasidis <sup>c</sup>   
Ajay Gambhir <sup>d</sup>, Jakob Wachsmuth <sup>e</sup>, Philine Warnke <sup>e</sup>, Ben McWilliams <sup>f</sup>, Haris Doukas <sup>c</sup>,  
Alexandros Nikas <sup>c</sup>

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### Highlights

- We use NATEM to develop/compare two net-zero pathways for Canada.
- A workshop was organised to identify bottlenecks & inform the co-created scenario.
- Stakeholders stressed the risk of CCS, & the potential of modal shifts/urban planning.

**Figure 5.** Preview of 'Co-creating Canada's path to net-zero: a stakeholder-driven modelling analysis' in Renewable and Sustainable Energy Transition

## 2.6 Koutsandreas et al. (2023), Energy Strategy Reviews

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | A multicriteria modeling approach for evaluating power generation scenarios under uncertainty: The case of green hydrogen in Greece                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Authors:        | Diamantis Koutsandreas (ICCS), Georgios P. Trachanas (ICCS), Ioannis Pappis, Alexandros Nikas (ICCS), Haris Doukas (ICCS), John Psarras (ICCS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Journal:        | Energy Strategy Reviews                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Abstract:       | Clean energy technological innovations are widely acknowledged as a prerequisite to achieving ambitious long-term energy and climate targets. However, the optimal speed of their adoption has been parsimoniously studied in the literature. This study seeks to identify the optimal intensity of moving to a green hydrogen electricity sector in Greece, using the OSeMOSYS energy modeling framework. Green hydrogen policies are evaluated, first, on the basis of their robustness against uncertainty and, afterwards, against conflicting performance criteria and for different decision-making profiles towards risk, by applying the VIKOR and TOPSIS multi-criteria decision aid methods. Although our analysis focuses exclusively on the power sector and compares different rates of hydrogen penetration compared to a business-as-usual case without considering other game-changing innovations (such as other types of storage or carbon capture and storage), we find that a national transition to a green hydrogen economy can support Greece in potentially cutting at least 16 MtCO <sub>2</sub> while stimulating investments of EUR 10–13 bn. over 2030–2050. |
| Keywords:       | Energy system modelling; Energy planning; OSeMOSYS-Greece; VIKOR; TOPSIS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| DOI:            | <a href="https://doi.org/10.1016/j.esr.2023.101233">https://doi.org/10.1016/j.esr.2023.101233</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| First Online:   | 10 October 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/8427501">https://zenodo.org/records/8427501</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Citation (APA): | Koutsandreas, D., Trachanas, G., Pappis, I., Nikas, A., Doukas, H., & Psarras, J. (2023). A multicriteria modeling approach for evaluating power generation scenarios under uncertainty: the case of green hydrogen in Greece. <i>Energy Strategy Reviews</i> , 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



Energy Strategy Reviews  
Volume 50, November 2023, 101233



## A multicriteria modeling approach for evaluating power generation scenarios under uncertainty: The case of green hydrogen in Greece

Diamantis Koutsandreas <sup>a, b</sup>, Georgios P. Trachanas <sup>a</sup>, Ioannis Pappis <sup>c</sup>, Alexandros Nikas <sup>a</sup>, , Haris Doukas <sup>a</sup>, John Psarras <sup>a</sup>

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### Highlights

- The proposed modeling approach stresses the importance of policymakers' risk profiles.
- A green hydrogen strategy could help Greece cut at least 16 MtCO<sub>2</sub> over 2030–2050.
- It could also stimulate about EUR 10–13 bn. of investments over the same period.

**Figure 6.** Preview of 'A multicriteria modeling approach for evaluating power generation scenarios under uncertainty: The case of green hydrogen in Greece' in Energy Strategy Reviews

## 2.7 Perdana et al. (2023), Climate Policy

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | The EU carbon border adjustment mechanism: implications on Brazilian energy intensive industries                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Authors:        | Sigit Perdana (EPFL), Marc Vielle (EPFL), Thais Diniz Oliveira                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Journal:        | Climate Policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Abstract:       | <p>As an instrument supporting the realization of EU climate neutrality targets by 2050 and encouraging decarbonization outside its borders, the current proposed Carbon Border Adjustment Mechanism (CBAM) is facing opposition from some countries. Focusing on Brazil, this paper evaluates the impacts of the CBAM on the Brazilian economy through a comprehensive analysis of various scenarios based on the potential EU implementation of the CBAM and Brazil's climate scenarios. Results obtained in this research alleviate concerns of detrimental and competitiveness losses from Brazilian industries. Rather, the implementation of the EU CBAM improves the trade balance of Brazil's Energy-Intensive Industries (EII). The relatively low CO<sub>2</sub> contents of Brazilian EII are elemental to this result, while contributions of carbon-free technologies in electricity generation are also critical factors in maximizing this trade surplus. Other consequential factors affecting these results are the contributions of CO<sub>2</sub> removal from Brazil's forestry of land used, and homogeneity of CBAM-imposed products.</p> |
| Keywords:       | Carbon border adjustment mechanism; Brazil; European Union; energy-intensive industries; nationally determined contribution; climate mitigation; carbon pricing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| DOI:            | <a href="https://doi.org/10.1080/14693062.2023.2277405">https://doi.org/10.1080/14693062.2023.2277405</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| First Online:   | 2 November 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/10069214">https://zenodo.org/records/10069214</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Synergies with: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Citation (APA): | Perdana, S. P., Vielle, M., & Diniz-Oliveira, T. (2023). The EU carbon border adjustment mechanism: implications on Brazilian energy intensive industries. Climate Policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



**Figure 7.** Preview of ‘The EU carbon border adjustment mechanism: implications on Brazilian energy intensive industries’ in Climate Policy

## 2.8 Boitier et al. (2023), Joule

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | A multi-model analysis of the EU's path to net zero                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Authors:        | Baptiste Boitier (SEURECO), Alexandros Nikas (ICCS), Ajay Gambhir (Imperial), Konstantinos Koasidis (ICCS), Alessia Elia (E4SMA), Khaled Al-Dabbas, Şirin Alibaş, Lorenza Campagnolo, Alessandro Chiodi (E4SMA) Elisa Delpiazzi, Haris Doukas (ICCS), Arnaud Fougeyrollas (SEURECO), Maurizio Gargiulo (E4SMA), Pierre Le Mouël (SEURECO), Felix Neuner, Sigit Perdana (EPFL), Dirk-Jan van de Ven (BC3), Marc Vielle (EPFL), Paul Zagamé (SEURECO), Shivika Mittal (CICERO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Journal:        | Joule                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Abstract:       | The European Union (EU) recently ratcheted its climate ambition to net-zero emissions by 2050, with a milestone of 55% emissions cuts in 2030. This study carries out a model inter-comparison to assess the EU's path, from "Fit for 55" in 2030 to an intermediate milestone in 2040 and onto net zero in 2050, offering insights at sectoral and member-state levels. Our model results support the bloc's ambition for its Emissions Trading System and Effort Sharing Regulation sectors while pointing to the need for near-complete decarbonization of electricity by 2040, enabled by considerable deployment of renewables (45%–65% in 2030, to 60%–70% in 2040, and to 75%–90% in 2050 in electricity generation) and carbon capture and storage (0.5–2 GtCO <sub>2</sub> /year by 2050). We also highlight the trade-offs between supply-side and harder-to-abate sectors, assess the ambition of member states for net zero and timing of coal phaseout, and reflect on the economic implications of investment, technical, and policy needs. |
| Keywords:       | Modelling, climate mitigation pathways, net-zero emissions, European climate policy, climate and energy transition, Fit for 55, European Union, integrated assessment models, model inter-comparison, Emissions Trading System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DOI:            | <a href="https://doi.org/10.1016/j.joule.2023.11.002">https://doi.org/10.1016/j.joule.2023.11.002</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| First Online:   | 23 November 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/10213459">https://zenodo.org/records/10213459</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Citation (APA): | Boitier, B., Nikas, A., Gambhir, A., Koasidis, K., Elia, A., Al-Dabbas, K., ... & Mittal, S. (2023). A multi-model analysis of the EU's path to net zero. <i>Joule</i> , 7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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# A multi-model analysis of the EU's path to net zero

Baptiste Boitier<sup>1</sup> · Alexandros Nikas<sup>2,12</sup> · Ajay Gambhir<sup>3</sup> · ... · Marc Vieille<sup>9</sup> · Paul Zagamé<sup>1,11</sup> · Shivika Mittal<sup>3</sup>

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## Context & scale

The EU has committed to becoming a net-zero economy by 2050, with many member states having integrated this goal into national strategies. However, the bloc's path toward achieving these targets remains unclear. We use five whole-system climate-economy models and two sectoral models to explore how the EU can keep net zero within reach by mid-century, offering insights into intermediate milestones and implications at sectoral and national levels. Our results indicate that a 62% emissions reduction in the Emissions Trading System and 40% in the Effort Sharing Regulation, compared with 2005 levels, are in line with cost-optimal paths toward the bloc's 55% emissions cuts target by 2030. Bridging the gap with net zero in 2050 entails near-complete decarbonization of ETS, total decarbonization of electricity, and complete phaseout of unabated coal power by 2040, as well as rapid scale-up of negative emissions technologies and an 80% diffusion of renewables in the EU electricity mix by 2050.

### Highlights

- We examine the EU's cost-optimal timeline to net zero by 2050, using seven models
- The bloc should phase out unabated coal and decarbonize its power sector by 2040
- "Fit for 55" ETS and ESR targets are in line with the EU's 2050 net-zero ambition
- Critical choices (e.g., RES vs. nuclear, BECCS vs. deep emissions cuts in transport)

## Figures (5)

Figure Viewer

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### Article metrics

**Figure 8.** Preview of 'A multi-model analysis of the EU's path to net zero' in Joule

## 2.9 Nikas et al. (2024), Energy

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Three different directions in which the European Union could replace Russian natural gas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Authors:        | Alexandros Nikas (ICCS), Natasha Frilingou (ICCS), Conall Heussaff, Panagiotis Fragkos (ICCS), Shivika Mittal (CICERO), Jon Sampedro (BC3), Sara Giarola (Imperial), Jan-Philipp Sasse, Lorenzo Rinaldi, Haris Doukas (ICCS), Ajay Gambhir (Imperial), Anastasis Giannousakis (ICCS), Nicolò Golinucci, Konstantinos Koasidis (ICCS), Matteo Vincenzo Rocco, Evelina Trutnevyte, Georgios Xexakis (HOLISTIC), Georg Zachmann, Eleftheria Zisarou (ICCS), Emanuela Colombo Adam Hawkes (Imperial), Brinda Yarlagadda, Matthew Binsted, Gokul, Rasmus Magni Johannsen, Jakob Zinck Thellufsen, Henrik Lund, Dirk-Jan Van de Ven (BC3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Journal:        | Energy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Abstract:       | Russia's invasion of Ukraine fuelled an energy crisis, which considerably impacted Europe given its heavy reliance on Russian natural gas imports. This study uses an ensemble of four global integrated assessment models, which are further soft-linked to two sectoral models, and explores the synergies and trade-offs among three approaches to living without Russian gas in Europe: (a) replacing with other gas imports, (b) boosting domestic energy production, and (c) reducing demand and accelerating energy efficiency. We find that substituting Russian gas from other trade partners would miss an opportunity to accelerate decarbonisation in end-use sectors while risking further fossil-fuel lock-ins, despite featuring the lowest gas price spikes and potentially reducing heating costs for end-users in the near term. Boosting domestic, primarily renewable, energy production on the other hand would instead require considerable investments, potentially burdening consumers. Energy demand reductions, however, could offer considerable space for further emissions cuts at the lowest power-sector investment costs; nonetheless, an energy efficiency-driven strategy would also risk relocation of energy-intensive industries, an aspect of increasing relevance to EU policymakers. |
| Keywords:       | European Union; Russia; Natural gas; Imports ban; Integrated assessment models; Model inter-comparison                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| DOI:            | <a href="https://doi.org/10.1016/j.energy.2024.130254">https://doi.org/10.1016/j.energy.2024.130254</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| First Online:   | 4 January 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/11536659">https://zenodo.org/records/11536659</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Synergies with: | HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Citation (APA): | Nikas, A., Frilingou, N., Heussaff, C., Fragkos, P., Mittal, S., Sampedro, J., ... & Van de Ven, D. J. (2024). Three different directions in which the European Union could replace Russian natural gas. <i>Energy</i> , 130254.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



Energy

Volume 290, 1 March 2024, 130254



## Three different directions in which the European Union could replace Russian natural gas

Alexandros Nikas <sup>a</sup>, Natasha Frilingou <sup>a</sup>, Conall Heussaff <sup>b</sup>, Panagiotis Fragkos <sup>c</sup>, Shivika Mittal <sup>d</sup>, Jon Sampedro <sup>e</sup>, Sara Giarola <sup>f</sup>, Jan-Philipp Sasse <sup>g</sup>, Lorenzo Rinaldi <sup>h</sup>, Haris Doukas <sup>a</sup>, Ajay Gambhir <sup>d</sup>, Anastasis Giannousakis <sup>c</sup>, Nicolò Golinucci <sup>h</sup>, Konstantinos Koasidis <sup>a</sup>, Matteo Vincenzo Rocco <sup>h</sup>, Evelina Trutnevyte <sup>g</sup>, Georgios Xexakis <sup>i</sup>, Georg Zachmann <sup>b</sup>, Eleftheria Zisarou <sup>c</sup>, Emanuela Colombo <sup>h</sup>, Dirk-Jan Van de Ven <sup>e</sup>

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### Highlights

- Three 'corner' strategies to replacing Russian natural gas in the EU are explored.
- EU climate targets can still be reached in all three strategies, but costs increase.
- Promoting energy efficiency or domestic renewables can boost end-

**Figure 9.** Preview of 'Three different directions in which the European Union could replace Russian natural gas' in Energy

## 2.10 McGookin et al. (2024), Energy Strategy Reviews

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Advancing participatory energy systems modelling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Authors:        | Connor McGookin, Diana Süsser, Georgios Xexakis (HOLISTIC), Evelina Trutnevyte, Will McDowall (UCL), Alexandros Nikas (ICCS), Konstantinos Koasidis (ICCS), Sheridan Few, Per Dannemand Andersen, Christina Demski, Patrícia Fortes, Sofia G. Simoes, Christopher Bishop (UCL), Fionn Rogan, Brian Ó Gallachóir                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Journal:        | Energy Strategy Reviews                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Abstract:       | Energy system models are important tools to guide our understanding of current and future carbon dioxide emissions as well as to inform strategies for emissions reduction. These models offer a vital evidence base that increasingly underpins energy and climate policies in many countries. In light of this important role in policy formation, there is growing interest in, and demands for, energy modellers to integrate more diverse perspectives on possible and preferred futures into the modelling process. The main purpose of this is to ensure that the resultant policy decisions are both fairer and better reflect people's concerns and preferences. However, while there has been a focus in the literature on efforts to bring societal dimensions into modelling tools, there remains a limited number of examples of well-structured participatory energy systems modelling processes and no available how-to guidance. This paper addresses this gap by providing good practice guidance for integrating stakeholder and public involvement in energy systems modelling based on the reflections of a diverse range of experts from this emergent field. The framework outlined in this paper offers multiple entry points for modellers to incorporate participatory elements either throughout the process or in individual stages. Recognising the messiness of both fields (energy systems modelling and participatory research), the good practice principles are not comprehensive or set in stone, but rather pose important questions to steer this process. Finally, the reflections on key issues provide a summary of the crucial challenges and important areas for future research in this critical field. |
| Keywords:       | Participatory framework; energy systems modelling;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| DOI:            | <a href="https://doi.org/10.1016/j.esr.2024.101319">https://doi.org/10.1016/j.esr.2024.101319</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| First Online:   | 2 February 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/10610295">https://zenodo.org/records/10610295</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Synergies with: | H2020 ENCLUDE (GA: 101022791), EU LIFE programme JUSTEM (project ID 101076151), H2020 PARIS REINFORCE (GA: 820846), HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Citation (APA): | McGookin, C., Süsser, D., Xexakis, G., Trutnevyte, E., McDowall, W., Nikas, A., Koasidis, K., & Ó Gallachóir, B. (2024). Advancing participatory energy systems modelling. <i>Energy Strategy Reviews</i> , 52, 101319                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



Energy Strategy Reviews  
Volume 52, March 2024, 101319



## Advancing participatory energy systems modelling

Connor McGookin <sup>a, b, c</sup>, Diana Süßer <sup>d</sup>, Georgios Xexakis <sup>e</sup>, Evelina Trutnevyte <sup>f</sup>,  
Will McDowall <sup>g</sup>, Alexandros Nikas <sup>h</sup>, Konstantinos Koasidis <sup>h</sup>, Sheridan Few <sup>i</sup>,  
Per Dannemand Andersen <sup>j</sup>, Christina Demski <sup>k</sup>, Patrícia Fortes <sup>l</sup>, Sofia G. Simoes <sup>m</sup>,  
Christopher Bishop <sup>g</sup>, Fionn Rogan <sup>a, b</sup>, Brian Ó Gallachóir <sup>a, b</sup>

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### Highlights

- A framework for participatory energy system modelling was developed.
- Different entry points are outlined for modellers to integrate participatory approaches.
- Good practice principles are provided to help navigate this process.
- Critical reflections on the key issues within this emergent field offer important areas for future research.

**Figure 10.** Preview of 'Advancing participatory energy systems modelling' in Energy Strategy Reviews

## 2.11 Moreno et al. (2024), Communications earth & environment

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | The impacts of decarbonization pathways on Sustainable Development Goals in the European Union                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Authors:        | Jorge Moreno (BC3), Lorenza Campagnolo, Baptiste Boitier (SEURECO), Alexandros Nikas (ICCS), Konstantinos Koasidis (ICCS), Ajay Gambhir (Imperial), Mikel Gonzalez-Eguino (BC3), Sigit Perdana (EPFL), Dirk-Jan Van de Vem (BC3), Alessandro Chiodi (E4SMA), Elisa Delpiazzi, Haris Doukas (ICCS), Maurizio Gargiulo (E4SMA), Andrea Herbst, Khaled Al-Dabbas, Şirin Alibaş, Felix Neuner, Pierre Le Mouël (SEURECO) & Marc Vielle (EPFL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Journal:        | Communications earth & environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Abstract:       | Climate action to achieve the Paris Agreement should respect the United Nations Sustainable Development Goals. Here, we use an integrated assessment modelling framework comprising nine climate policy models and quantify the impacts of decarbonisation pathways on Sustainable Development Goals in the European Union at regional and national levels. We show that scenario-consistent assumptions of future socio-economic trends and current climate policies would improve energy- and carbon-related aspects of sustainability and reduce inequalities. Ambitious net-zero emissions pathways would further improve health and agricultural productivity. Furthermore, countries currently lagging in achieving sustainable development goals would see the greatest benefits from ambitious climate action. Negative socio-economic impacts from climate action on poverty, hunger, and economic growth will require specific corrective policies. While our analysis does not quantify the negative effects of less ambitious climate policy, it demonstrates where co-benefits and trade-offs of greenhouse gas mitigation and sustainable development agenda exist and can guide policy formulation. |
| Keywords:       | Decarbonisation pathways; European Union; Sustainable Development Goals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DOI:            | <a href="https://doi.org/10.1038/s43247-024-01309-7">https://doi.org/10.1038/s43247-024-01309-7</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| First Online:   | 16 March 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Repository:     | Zenodo (Link: <a href="https://doi.org/10.5281/zenodo.10072817">https://doi.org/10.5281/zenodo.10072817</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Synergies with: | H2020 PARIS REINFORCE (GA: 820846), HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Citation (APA): | Moreno, J., Campagnolo, L., Boitier, B., Nikas, A., Koasidis, K., Gambhir, A., ... & Vielle, M. (2024). The impacts of decarbonization pathways on Sustainable Development Goals in the European Union. <i>Communications Earth &amp; Environment</i> , 5(1), 136.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



## 2.12 Joshi et al. (2024), Scientific Data

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Global high-resolution growth projections dataset for rooftop area consistent with the shared socioeconomic pathways, 2020–2050                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Authors:        | Siddharth Joshi, Behnam Zakeri, Shivika Mittal (CICERO), Alessio Mastrucci, Paul Holloway, Volker Krey, Priyadarshi Ramprasad Shukla, Brian O’Gallachoir & James Glynn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Journal:        | Scientific Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Abstract:       | Assessment of current and future growth in the global rooftop area is important for understanding and planning for a robust and sustainable decentralised energy system. These estimates are also important for urban planning studies and designing sustainable cities thereby forwarding the ethos of the Sustainable Development Goals 7 (clean energy), 11 (sustainable cities), 13 (climate action) and 15 (life on land). Here, we develop a machine learning framework that trains on big data containing ~700 million open-source building footprints, global land cover, road, and population datasets to generate globally harmonised estimates of growth in rooftop area for five different future growth narratives covered by Shared Socioeconomic Pathways. The dataset provides estimates for ~3.5 million fishnet tiles of 1/8 degree spatial resolution with data on gross rooftop area for five growth narratives covering years 2020–2050 in decadal time steps. This single harmonised global dataset can be used for climate change, energy transition, biodiversity, urban planning, and disaster risk management studies covering continental to conurbation geospatial levels. |
| Keywords:       | Shared socioeconomic pathways; rooftop area; growth; Sustainable Development Goals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| DOI:            | <a href="https://doi.org/10.1038/s41597-024-03378-x">https://doi.org/10.1038/s41597-024-03378-x</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| First Online:   | 30 May 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Repository:     | Zenodo (Link: <a href="https://doi.org/10.5281/zenodo.11085013">https://doi.org/10.5281/zenodo.11085013</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Synergies with: | HE CircEular (GA: 1010568106)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Citation (APA): | Joshi, S., Zakeri, B., Mittal, S., Mastrucci, A., Holloway, P., Krey, V., ... & Glynn, J. (2024). Global high-resolution growth projections dataset for rooftop area consistent with the shared socioeconomic pathways, 2020–2050. <i>Scientific Data</i> , 11(1), 563.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## scientific data

[Explore content](#) [About the journal](#) [Publish with us](#)[nature](#) > [scientific data](#) > [data descriptors](#) > [article](#)Data Descriptor | [Open access](#) | Published: 30 May 2024**Global high-resolution growth projections dataset for rooftop area consistent with the shared socioeconomic pathways, 2020–2050**[Siddharth Joshi](#) , [Behnam Zakeri](#), [Shivika Mittal](#), [Alessio Mastrucci](#), [Paul Holloway](#), [Volker Krey](#), [Priyadarshi Ramprasad Shukla](#), [Brian O'Gallachoir](#) & [James Glynn](#)[Scientific Data](#) **11**, Article number: 563 (2024) | [Cite this article](#)**2480** Accesses | **1** Citations | **110** Altmetric | [Metrics](#)**Abstract**

Assessment of current and future growth in the global rooftop area is important for understanding and planning for a robust and sustainable decentralised energy system. These estimates are also important for urban planning studies and designing sustainable cities thereby forwarding the ethos of the Sustainable Development Goals 7 (clean energy), 11 (sustainable cities), 13 (climate action) and 15 (life on land). Here, we develop a machine learning framework that trains on big data containing ~700 million open-source building footprints, global land cover, road, and population datasets to generate globally harmonised estimates of growth in rooftop area for five different future growth narratives covered by Shared Socioeconomic Pathways. The dataset provides estimates for ~3.5 million fishnet tiles of 1/8 degree spatial resolution with data on gross rooftop area for five growth narratives covering years 2020–2050 in decadal time steps. This single harmonised global dataset can be used for climate change, energy transition, biodiversity, urban planning, and disaster risk

**Figure 12.** Preview of 'Global high-resolution growth projections dataset for rooftop area consistent with the shared socioeconomic pathways, 2020–2050' in Scientific Data

## 2.13 Sampedro et al. (2024), Energy Strategy Reviews

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Energy system analysis of cutting off Russian gas supply to the European Union                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Authors:        | Jon Sampedro (BC3), Dirk-Jan Van de Ven (BC3), Russell Horowitz (BC3), Clàudia Rodés-Bachs (BC3), Natasha Frilingou (ICCS), Alexandros Nikas (ICCS), Matthew Binsted, Gokul Iyer, Brinda Yarlagadda                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Journal:        | Energy Strategy Reviews                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Abstract:       | The reduction of the EU's pipeline gas imports from Russia because of the Russian war against Ukraine has had severe economy-wide implications for the bloc. Using a multisector integrated assessment model (GCAM), we find that a potential complete cut-off of Russian pipeline gas exports to the EU unevenly impacts the energy mix and gas prices across subregions within the EU, depending on their access to alternative gas pipelines and liquefied natural gas infrastructure. The restrictions also affect global gas infrastructure capacity additions, asset stranding, and trade dynamics. Our results show that the Fit-for-55 policy framework already improves the EU's resilience against a cut-off of Russian pipeline gas, while additional improvements in energy efficiency and renewable targets could further soften impacts. |
| Keywords:       | Energy system; Natural gas; Energy trade; Integrated assessment models; Climate policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| DOI:            | <a href="https://doi.org/10.1016/j.esr.2024.101450">https://doi.org/10.1016/j.esr.2024.101450</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| First Online:   | 7 June 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/10512544">https://zenodo.org/records/10512544</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Synergies with: | HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Citation (APA): | Sampedro, J., Van de Ven, D. J., Horowitz, R., Rodés-Bachs, C., Frilingou, N., Nikas, A., ... & Yarlagadda, B. (2024). Energy system analysis of cutting off Russian gas supply to the European Union. <i>Energy Strategy Reviews</i> , 54, 101450.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



**Figure 13.** Preview of 'Energy system analysis of cutting off Russian gas supply to the European Union' in Energy Strategy Reviews

## 2.14 Perdana & Vielle (2024), Renewable and Sustainable Energy Transition

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Industrial European regions at risk within the Fit for 55: How far implementing CBAM can mitigate?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Authors:        | Sigit Perdana (EPFL), Marc Vielle (EPFL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Journal:        | Renewable and Sustainable Energy Transition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Abstract:       | The transition to a low-carbon economy can create new job opportunities but may cause job displacement in some sectors that heavily rely on fossil fuels. In order to gain a balanced appraisal in understanding the broader consequences of climate policies, this paper analyses the impact of the EU Fit for 55 with carbon border adjustment on EU employment at the regional level. Research findings prove that certain regions are disproportionately affected by job losses, indicating that the acceptability of these targeted policies should address these potential inequalities. The most exposed are regions with vast energy mining industries, however implementing CBAM reduces the exposure of regions with energy-intensive industries. Some regions in Greece, Spain and Italy are still very vulnerable post-CBAM implementation, suggesting high sensitivity of job losses and low capability of these regions to deal with energy transition. Accordingly, ensuring effective support for these vulnerable regions is critical to enhancing public acceptance and further cooperation for the EU climate commitment and a more well-managed transition to a low-carbon economy. |
| Keywords:       | European Union; Carbon border adjustment; Computable general equilibrium model; Jobs; Energy intensive industries; Employment impacts; Regional vulnerability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DOI:            | <a href="https://doi.org/10.1016/j.rset.2024.100088">https://doi.org/10.1016/j.rset.2024.100088</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| First Online:   | 24 June 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Repository:     | EPFL Repository (Link: <a href="https://infoscience.epfl.ch/handle/20.500.14299/208856">https://infoscience.epfl.ch/handle/20.500.14299/208856</a> ): Zenodo: Pending upload                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Synergies with: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Citation (APA): | Perdana, S., & Vielle, M. (2024). Industrial European regions at risk within the Fit for 55: How far implementing CBAM can mitigate?. Renewable and Sustainable Energy Transition, 100088.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



Renewable and Sustainable Energy Transition

Volume 6, February 2025, 100088



Full-length article

## Industrial European regions at risk within the Fit for 55: How far implementing CBAM can mitigate?

Sigit Perdana , Marc Vielle

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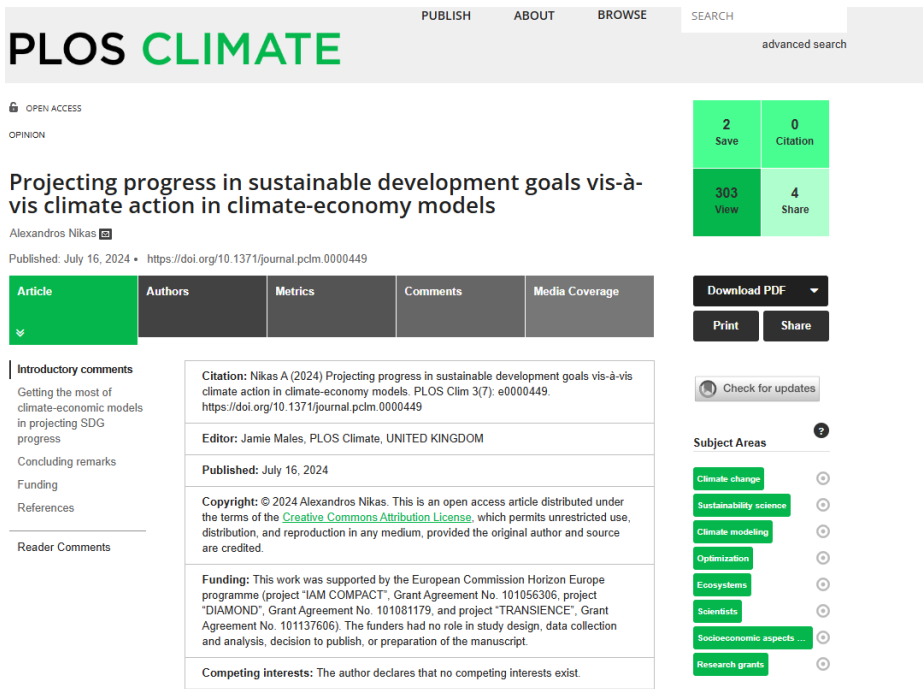
### Highlights

- Implementing CBAM does not directly affect employment in fossil-intensive regions.
- But CBAM mitigates exposure of employment loss in energy intensive regions.
- Our study reveals low adaptability in south and central regions amid energy shift.

**Figure 14.** Preview of 'Industrial European regions at risk within the Fit for 55: How far implementing CBAM can mitigate?' in Renewable and Sustainable Energy Transition

## 2.15 Nikas (2024), PLOS Climate

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Projecting progress in sustainable development goals vis-à-vis climate action in climate-economy models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Authors:        | Alexandros Nikas (NTUA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Journal:        | PLOS Climate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Abstract:       | The year 2015 was an important milestone in the world's struggle for sustainability. Although mostly remembered for the landmark Paris Agreement, which formalised and operationalised a mechanism for globally coordinated and cooperative efforts to address the climate crisis, it also featured the UN-wide adoption of the 2030 Agenda for Sustainable Development, embodied in seventeen distinct yet highly intertwined dimensions—the Sustainable Development Goals (SDGs). The scientific community has since attempted to actively support the assessment of progress and prospects/trends towards sustainability using an array of tools as interdisciplinary and diverse as the SDG agenda itself. However, such studies are mostly static and capture an overview of how far we still need to go. This piece discusses six ways, in which the capacity to evaluate progress in SDGs vis-à-vis efforts to mitigate climate change using IAMs is currently being enhanced to offer robust and actionable policy prescriptions that may place climate policy in a holistic sustainable development context |
| Keywords:       | Sustainable Development Goals, Integrated Assessment modelling; climate change mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DOI:            | <a href="https://doi.org/10.1371/journal.pclm.0000449">https://doi.org/10.1371/journal.pclm.0000449</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| First Online:   | 16 July 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Repository:     | Zenodo (Link: <a href="https://zenodo.org/records/12760230">https://zenodo.org/records/12760230</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Synergies with: | HE IAM COMPACT (GA: 101056306), HE TRANSIENCE (GA: 101137606)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Citation (APA): | Nikas, A. (2024). Projecting progress in sustainable development goals vis-à-vis climate action in climate-economy models. PLOS Clim 3(7): e0000449. <a href="https://doi.org/10.1371/journal.pclm.0000449">https://doi.org/10.1371/journal.pclm.0000449</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



**Figure 15.** Preview of ‘Projecting progress in sustainable development goals vis-à-vis climate action in climate-economy models’ in PLOS Climate

## 2.16 Calcaterra et al. (2024), Nature Energy

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Reducing the cost of capital to finance the energy transition in developing countries                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Authors:        | Matteo Calcaterra, Lara Aleluia Reis, Panagiotis Fragkos (ICCS), Thibault Briera, Harmen Sytze de Boer, Florian Egli (ETH), Johannes Emmerling, Gokul Iyer, Shivika Mittal (CICERO), Friedemann H.J. Polzin, Mark W.J.L. Sanders (UM), Tobias S. Schmidt (ETH), Alexandra Serebriakova (UM), Bjarne Steffen (ETH), Dirk-Jan van de Vem (BC3), Detlef P. van Vuuren, Paul Waidelich (ETH), Massimo Tavoni                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Journal:        | Nature Energy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Abstract:       | Climate stabilization requires the mobilization of substantial investments in low- and zero-carbon technologies, especially in emerging and developing economies. However, access to stable and affordable finance varies dramatically across countries. Models used to evaluate the energy transition do not differentiate regional financing costs and therefore cannot study risk-sharing mechanisms for renewable electricity generation. In this study, we incorporated the empirically estimated cost of capital differentiated by country and technology into an ensemble of five climate–energy–economy models. We quantified the additional financing cost of decarbonization borne by developing regions and explored policies of risk premium convergence across countries. We found that alleviating financial constraints benefits both climate and equity as a result of more renewable and affordable energy in the developing world. This highlights the importance of fair finance for energy availability, affordability and sustainability, as well as the need to include financial considerations in model-based assessments. |
| Keywords:       | Cost of capital; energy transition; developing countries                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DOI:            | <a href="https://doi.org/10.1038/s41560-024-01606-7">https://doi.org/10.1038/s41560-024-01606-7</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| First Online:   | 27 September 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Repository:     | Zenodo (Pending Upload)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Synergies with: | HE PRISMA (GA: 101081604), HE ELEVATE (GA: 101056873), INNOPATHS (GA: 730403), HE ECEMF (GA: 101022622), HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Citation (APA): | Calcaterra, M., Aleluia Reis, L., Fragkos, P., Briera, T., de Boer, H. S., Egli, F., ... & Tavoni, M. (2024). Reducing the cost of capital to finance the energy transition in developing countries. <i>Nature Energy</i> , 1-11.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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Article | Open access | Published: 27 September 2024

### Reducing the cost of capital to finance the energy transition in developing countries

M. Calcaterra, L. Aleluia Reis, P. Fragkos, T. Briera, H. S. de Boer, F. Egli, J. Emmerling, G. Iyer, S. Mittal, F. H. J. Polzin, M. W. J. L. Sanders, T. S. Schmidt, A. Serebriakova, B. Steffen, D. J. van de Ven, D. P. van Vuuren, P. Waidelich & M. Tavoni

Nature Energy 9, 1241–1251 (2024) | Cite this article

5887 Accesses | 37 Altmetric | Metrics

#### Abstract

Climate stabilization requires the mobilization of substantial investments in low- and zero-carbon technologies, especially in emerging and developing economies. However, access to stable and affordable finance varies dramatically across countries. Models used to evaluate the energy transition do not differentiate regional financing costs and therefore cannot study risk-sharing mechanisms for renewable electricity generation. In this study, we incorporated the empirically estimated cost of capital differentiated by country and technology into an ensemble of five climate–energy–economy models. We quantified the additional financing cost of decarbonization borne by developing regions and explored policies of risk premium convergence across countries. We found that alleviating financial constraints benefits both climate and equity as a result of more renewable and affordable energy in the developing world. This highlights the importance of fair finance for energy availability, affordability and sustainability, as well as the need to include financial considerations in model-based

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[Results of CoC convergence policies](#)  
[Discussion](#)  
[Methods](#)  
[Data availability](#)  
[Code availability](#)  
[References](#)  
[Acknowledgements](#)  
[Author information](#)  
[Ethics declarations](#)

**Figure 16.** Preview of ‘Industrial European regions at risk within the Fit for 55: How far implementing CBAM can mitigate?’ in Nature Energy

Funded by the European Union

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### 3 Conferences

In this section, the conference papers/presentations/posters presented by DIAMOND consortium partners are listed, mentioning their title, authors (DIAMOND consortium member institutions in parentheses), abstract and the venue where the conference was located.

#### 3.1 Rodés-Bachs et al. (2023), GCAM Community Modeling Meeting, 6-8 June, 2023

|                 |                                                                                                                                                                                                                           |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | GCAM report: An R tool to process and standardize GCAM outputs                                                                                                                                                            |
| Type            | Poster                                                                                                                                                                                                                    |
| Authors:        | Clàudia Rodés-Bachs (BC3), Jon Sampedro (BC3), Russell Horowitz (BC3), Dirk-Jan Van de Ven (BC3), Ryna Yiyun Cui, Alicia Zhao, Matthew Zwerling, and Zarrar Khan                                                          |
| Abstract:       | Presented by Clàudia Rodés-Bachs (Basque Centre for Climate Change).                                                                                                                                                      |
| Conference:     | GCAM Community Modeling Meeting                                                                                                                                                                                           |
| Date:           | 8 June, 2023                                                                                                                                                                                                              |
| Venue:          | Virtually                                                                                                                                                                                                                 |
| Synergies:      | HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                            |
| Citation (APA): | Rodés-Bachs, C., Sampedro, J., Van der Ven, D.J., Cui, R.Y., Zhao, A. & Zwerling, M. (2023). gcamreport: An R tool to process and standardize GCAM outputs, GCAM Community Modeling Meeting, June 6 - 8, 2023, virtually. |

#### 3.2 Sampedro et al. (2023), GCAM Community Modeling Meeting, 6-8 June, 2023

|                 |                                                                                                                                                                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Residential Energy Demand, Emissions, and Expenditures at Regional and Income-decile Level for Alternative Futures                                                                                                                                                                        |
| Type            | Presentation                                                                                                                                                                                                                                                                              |
| Authors:        | Jon Sampedro (BC3), Stephanie Waldhoff, Jae Edmonds, Gokul Iyer, Siwa Msangi, Kanishka Narayan, Pralit Patel, Marshall Wise                                                                                                                                                               |
| Abstract:       | Presented by Jon Sampedro (Basque Centre for Climate Change).                                                                                                                                                                                                                             |
| Conference:     | GCAM Community Modeling Meeting                                                                                                                                                                                                                                                           |
| Date:           | 8 June, 2023                                                                                                                                                                                                                                                                              |
| Venue:          | Virtually                                                                                                                                                                                                                                                                                 |
| Synergies:      | H2020 NDC ASPECTS (GA: 101003866), HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                         |
| Citation (APA): | Sampedro J., Waldhoff, S., Edmonds, J., Iyer, G., Msangi, S., Narayan, K., Pater, P. & Wise, M. (2023). Residential energy demand, emissions, and expenditures at regional and income-decile level for alternative futures. GCAM Community Modeling Meeting, June 6 - 8, 2023, virtually. |

### 3.3 Van de Ven et al. (2023), GCAM Community Modeling Meeting, 6-8 June, 2023

|                 |                                                                                                                                                                                                  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | "Current Policies" scenario: Implementation in GCAM and open community effort                                                                                                                    |
| Type            | Presentation                                                                                                                                                                                     |
| Authors:        | Dirk-Jan van de Ven (BC3), Russell Horowitz (BC3), Jon Sampedro (BC3)                                                                                                                            |
| Abstract:       | Presented by Dirk-Jan van de Ven (Basque Centre for Climate Change).                                                                                                                             |
| Conference:     | GCAM Community Modeling Meeting                                                                                                                                                                  |
| Date:           | 8 June, 2023                                                                                                                                                                                     |
| Venue:          | Virtually                                                                                                                                                                                        |
| Synergies:      | H2020 NDC ASPECTS (GA: 101003866), HE IAM COMPACT (GA: 101056306)                                                                                                                                |
| Citation (APA): | Van de Ven, D.J., Horowitz, R. & Sampedro, J. (2023). Current Policies scenario: Implementation in GCAM and open community effort. GCAM Community Modeling Meeting, June 6 - 8, 2023, virtually. |

### 3.4 Boitier et al. (2023), European Climate and Energy Modelling Platform 2023 (ECEMP), 5-6 October 2023

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | A multi-model assessment of the EU's path to net zero: aligning near-term action with long-term visions                                                                                                                                                                                                                                                                                                                                                                               |
| Type            | Presentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Authors:        | Baptiste Boitier (SEURECO), Alexandros Nikas (ICCS), Ajay Gambhir (Imperial), Konstantinos Koasidis (ICCS), Alessia Elia (E4SMA), Khaled Al-Dabbas, Şirin Alibaş, Lorenza Campagnolo, Alessandro Chiodi (E4SMA), Elisa Delpiazzi, Haris Doukas (ICCS), Arnaud Fougeyrollas (SEURECO), Maurizio Gargiulo (E4SMA), Pierre Le Mouël (SEURECO), Felix Neuner, Sigit Perdana (EPFL), Dirk-Jan van de Ven (BC3), Marc Vielle (EPFL), Paul Zagamé (SEURECO), Shivika Mittal (CICERO)         |
| Abstract:       | Presented by Batiste Boitier (Société Européenne d'ECONomie).                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Conference:     | European Climate and Energy Modelling Platform 2023 (ECEMP)                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Date:           | 6 October, 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Venue:          | Virtually                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Synergies:      | HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Citation (APA): | Boitier, B., Nikas, A., Gambhir, A., Koasidis, K., Elia, A., Al-Dabbas, K., Alibaş, S., Campagnolo, L., Chiodi, A., Delpiazzi, E., Doukas, H., Fougeyrollas, A., Gargiulo, M., Le Mouël, P., Neuner, F., Perdana, S., Van de Ven, D.J., Vielle, M., Zagamé, P., & Mittal, S. (2023). A multi-model assessment of the EU's path to net zero: aligning near-term action with long-term visions. European Climate and Energy Modelling Platform 2023 (ECEMP), October 5-6, 2023, Online. |

### 3.5 Frilingou et al. (2023), European Climate and Energy Modelling Platform 2023 (ECEMP), 5-6 October 2023

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | A multi-model assessment of European strategies to eliminate Russian gas imports                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Type            | Presentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Authors:        | Natasha Frilingou (ICCS), Connal Heussaff (Bruegel), Panagiotis Fragkos (ICCS), Shivika Mittal (CICERO), Jon Sampedro (BC3), Sara Giarola (Imperial), Jan-Philipp Sasse, Lorenzo Rinaldi, Haris Doukas (ICCS), Ajay Gambhir (Imperial), Anastasis Giannousakis (ICCS), Nicolò Golinucci, Konstantinos Koasidis (ICCS), Matteo Vincenzo Rocco, Evelina Trutnevyte, Georgios Xexakis (HOLISTIC), Georg Zachmann, Matthew Binsted, Gokul Iyer, Brinda Yarlagadda, Dirk-Jan Van de Ven (BC3), Alexandros Nikas (ICCS) |
| Abstract:       | Presented by Natasha Frilingou (Institute of Communication and Computer Systems).                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Conference:     | European Climate and Energy Modelling Platform 2023 (ECEMP)                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Date:           | 6 October, 2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Venue:          | Virtually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Synergies:      | HE IAM COMPACT (GA: 101056306)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Citation (APA): | N. Frilingou, C. Heussaff, P. Fragkos, S. Mittal, J. Sampedro, S. Giarola, J.-P. Sasse, L. Rinaldi, H. Doukas, A. Gambhir, A. Giannousakis, N. Golinucci, K. Koasidis, M.V. Rocco, E. Trutnevyte, G. Xexakis, G. Zachmann, M. Binsted, G. Iyer, B. Yarlagadda, D.-J. Van de Ven, & A. Nikas. (2023). A multi-model assessment of European strategies to eliminate Russian gas imports. European Climate and Energy Modelling Platform 2023 (ECEMP), October 5-6, 2023, Online.                                    |

### 3.6 Vielle & Perdana (2023), European Climate and Energy Modelling Platform 2023 (ECEMP), 5-6 October 2023

|                 |                                                                                                                                                                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Mapping the transition: Industrial European regions at risk within the fit for 55                                                                                                                          |
| Type            | Presentation                                                                                                                                                                                               |
| Authors:        | Marc Vielle (EPFL), Sigit Perdana (EPFL)                                                                                                                                                                   |
| Abstract:       | Presented by Marc Vielle (École Polytechnique Fédérale de Lausanne)                                                                                                                                        |
| Conference:     | European Climate and Energy Modelling Platform 2023 (ECEMP)                                                                                                                                                |
| Date:           | 6 October, 2023                                                                                                                                                                                            |
| Venue:          | Virtually                                                                                                                                                                                                  |
| Synergies:      |                                                                                                                                                                                                            |
| Citation (APA): | Vielle, M., Perdana, S. (2023). Mapping the transition: Industrial European regions at risk within the fit for 55. European Climate and Energy Modelling Platform 2023 (ECEMP), October 5-6, 2023, Online. |

### 3.7 Xexakis (2023), European Climate and Energy Modelling Platform 2023 (ECEMP), 5-6 October 2023

|                 |                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Dependency & Energy Security                                                                                                              |
| Type            | Session                                                                                                                                   |
| Authors:        | George Xexakis (HOLISTIC)                                                                                                                 |
| Abstract:       | Hosted by George Xexakis (HOLISTIC)                                                                                                       |
| Conference:     | European Climate and Energy Modelling Platform 2023 (ECEMP)                                                                               |
| Date:           | 6 October, 2023                                                                                                                           |
| Venue:          | Virtually                                                                                                                                 |
| Synergies:      |                                                                                                                                           |
| Citation (APA): | Xexakis. G. (2023). Dependency & Energy Security. European Climate and Energy Modelling Platform 2023 (ECEMP), October 5-6, 2023, Online. |

### 3.8 Nikas et al. (2023), Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), 14-16 November, 2023

|                 |                                                                                                                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Three corner options for replacing Russian gas imports in Europe: a multi-model analysis                                                                                                                                                      |
| Type            | Oral Presentation                                                                                                                                                                                                                             |
| Authors:        | Alexandros Nikas (ICCS), et al.                                                                                                                                                                                                               |
| Abstract:       | Presented by Alexandros Nikas (Institute of Communication and Computer Systems).                                                                                                                                                              |
| Conference:     | Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC)                                                                                                                                                              |
| Date:           | 16 November, 2023                                                                                                                                                                                                                             |
| Venue:          | Venice, Italy                                                                                                                                                                                                                                 |
| Synergies:      | N/A                                                                                                                                                                                                                                           |
| Citation (APA): | Nikas, A., et. al. (2023). Three corner options for replacing Russian gas imports in Europe: a multi-model analysis. Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), November 14 - 16, 2023, Venice, Italy. |

### 3.9 van de Ven et al. (2023), Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), 14-16 November, 2023

|             |                                                                                  |
|-------------|----------------------------------------------------------------------------------|
| Title:      | A multi-model analysis of the EU's path to net zero                              |
| Type        | Oral Presentation                                                                |
| Authors:    | Dirk-Jan van de Ven (BC3), et al.                                                |
| Abstract:   | Presented by Dirk-Jan van de Ven (Basque Centre for Climate Change).             |
| Conference: | Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC) |
| Date:       | 16 November, 2023                                                                |

|                 |                                                                                                                                                                                                                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Venue:          | Venice, Italy                                                                                                                                                                                                   |
| Synergies:      | N/A                                                                                                                                                                                                             |
| Citation (APA): | van de Ven, D.J., et. al. (2023). A multi-model analysis of the EU's path to net zero. Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), November 14 - 16, 2023, Venice, Italy. |

### 3.10 Perdana et al. (2023), Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), 14-16 November, 2023

|                 |                                                                                                                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Mapping the transition: Industrial European regions at risk within the fit for 55                                                                                                                                                         |
| Type            | Oral Presentation                                                                                                                                                                                                                         |
| Authors:        | Marc Vielle (EPFL), Sigit Perdana (EPFL)                                                                                                                                                                                                  |
| Abstract:       | Presented by Sigit Perdana (École Polytechnique Fédérale de Lausanne).                                                                                                                                                                    |
| Conference:     | Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC)                                                                                                                                                          |
| Date:           | 16 November, 2023                                                                                                                                                                                                                         |
| Venue:          | Venice, Italy                                                                                                                                                                                                                             |
| Synergies:      | N/A                                                                                                                                                                                                                                       |
| Citation (APA): | Perdana, S., Vielle, M. (2023 Mapping the transition: Industrial European regions at risk within the fit for 55. Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), November 14 - 16, 2023, Venice, Italy. |

### 3.11 Zhang et al. (2023), Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), 14-16 November, 2023

|                 |                                                                                                                                                                                                                                                                           |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | The shifting geopolitics of natural gas: Russia's invasion of Ukraine and implications for the low-carbon transition                                                                                                                                                      |
| Type            | Oral Presentation                                                                                                                                                                                                                                                         |
| Authors:        | Dan Zhang (UCL), et al.                                                                                                                                                                                                                                                   |
| Abstract:       | Presented by Dan Zhang (University College London).                                                                                                                                                                                                                       |
| Conference:     | Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC)                                                                                                                                                                                          |
| Date:           | 16 November, 2023                                                                                                                                                                                                                                                         |
| Venue:          | Venice, Italy                                                                                                                                                                                                                                                             |
| Synergies:      | N/A                                                                                                                                                                                                                                                                       |
| Citation (APA): | Zhang, D., et. al. (2023). The shifting geopolitics of natural gas: Russia's invasion of Ukraine and implications for the low-carbon transition. Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), November 14 - 16, 2023, Venice, Italy. |

### 3.12 Xexakis et al. (2023), Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), 14-16 November, 2023

|                 |                                                                                                                                                                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | The impacts of a polycrisis on sustainable development: Experts' vs. modellers' expectations and the capabilities of IAMs                                                                                                                                                        |
| Type            | Poster                                                                                                                                                                                                                                                                           |
| Authors:        | George Xexakis (HOLISTIC), et al.                                                                                                                                                                                                                                                |
| Abstract:       | Presented by George Xexakis (HOLISTIC).                                                                                                                                                                                                                                          |
| Conference:     | Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC)                                                                                                                                                                                                 |
| Date:           | 16 November, 2023                                                                                                                                                                                                                                                                |
| Venue:          | Venice, Italy                                                                                                                                                                                                                                                                    |
| Synergies:      | N/A                                                                                                                                                                                                                                                                              |
| Citation (APA): | Xexakis, G., et. al. (2023). The impacts of a polycrisis on sustainable development: Experts' vs. modellers' expectations and the capabilities of IAMs. Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), November 14 - 16, 2023, Venice, Italy. |

### 3.13 Koasidis et al. (2023), Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), 14-16 November, 2023

|                 |                                                                                                                                                                                                                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Delving in the impact of stakeholder input in modelled pathways: Canada's path to net-zero and the role of game-changing innovations                                                                                                                                                         |
| Type            | Poster                                                                                                                                                                                                                                                                                       |
| Authors:        | Konstantinos Koasidis (ICCS), et al.                                                                                                                                                                                                                                                         |
| Abstract:       | Presented by Konstantinos Koasidis (Institute of Communication and Computer Systems).                                                                                                                                                                                                        |
| Conference:     | Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC)                                                                                                                                                                                                             |
| Date:           | 16 November, 2023                                                                                                                                                                                                                                                                            |
| Venue:          | Venice, Italy                                                                                                                                                                                                                                                                                |
| Synergies:      | N/A                                                                                                                                                                                                                                                                                          |
| Citation (APA): | Koasidis, K., et. al. (2023). Delving in the impact of stakeholder input in modelled pathways: Canada's path to net-zero and the role of game-changing innovations. Sixteenth Annual Meeting of the Integrated Assessment Modeling Consortium (IAMC), November 14 - 16, 2023, Venice, Italy. |

### 3.14 Vienni-Baptista (2024), Vienna Doctoral School of Ecology and EvoluBon (VDSEE) – Annual VDSEE Symposium, 16 February, 2024

|                 |                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Pathways to inter- and transdisciplinary research for sustainable futures: opportunities and challenges                                                                                                                                                 |
| Type            | Keynote speak                                                                                                                                                                                                                                           |
| Authors:        | Bianca Vienni-Baptista (ETH)                                                                                                                                                                                                                            |
| Abstract:       | Presented by Bianca Vienni-Baptista (Federal Institute of Technology Zurich).                                                                                                                                                                           |
| Conference:     | Vienna Doctoral School of Ecology and EvoluBon (VDSEE) – Annual VDSEE Symposium, 16 February, 2024                                                                                                                                                      |
| Date:           | 16 February, 2024                                                                                                                                                                                                                                       |
| Venue:          | Vienna, Austria                                                                                                                                                                                                                                         |
| Synergies:      | N/A                                                                                                                                                                                                                                                     |
| Citation (APA): | Vienni-Baptista, B. (2024). Pathways to inter- and transdisciplinary research for sustainable futures: opportunities and challenges. Vienna Doctoral School of Ecology and EvoluBon (VDSEE) – Annual VDSEE Symposium, 16 February 2024, Vienna, Austria |

### 3.15 Herbig et al. (2024) EGU General Assembly 2024 , 14-19 April, 2024

|                 |                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | From Stakeholder Engagement to Inclusivity: Advancing Participatory Modeling for Net-Zero Sustainable Development                                                                                                                                                                                                                                                          |
| Type            | Presentation                                                                                                                                                                                                                                                                                                                                                               |
| Authors:        | Victoria Herbig (ETH), Stephanie Briers (ETH), Bianca Vienni-Baptista (ETH)                                                                                                                                                                                                                                                                                                |
| Abstract:       | Presented by Victoria Herbig (Federal Institute of Technology Zurich).                                                                                                                                                                                                                                                                                                     |
| Conference:     | EGU General Assembly 2024                                                                                                                                                                                                                                                                                                                                                  |
| Date:           | 14-19 April, 2024                                                                                                                                                                                                                                                                                                                                                          |
| Venue:          | Vienna, Austria                                                                                                                                                                                                                                                                                                                                                            |
| Synergies:      | N/A                                                                                                                                                                                                                                                                                                                                                                        |
| Citation (APA): | Herbig, V., Briers, S., and Vienni-Baptista, B.: From Stakeholder Engagement to Inclusivity: Advancing Participatory Modeling for Net-Zero Sustainable Development, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-9297, <a href="https://doi.org/10.5194/egusphere-egu24-9297">https://doi.org/10.5194/egusphere-egu24-9297</a> , 2024. [presentation] |

### 3.16 Frilingou et al. (2024) EGU General Assembly 2024 , 14-19 April, 2024

|        |                                                                                                  |
|--------|--------------------------------------------------------------------------------------------------|
| Title: | How do interest rates affect decarbonisation pathways? A stakeholder-driven multi-model analysis |
| Type   | Poster                                                                                           |

Authors: Natasha Frilingou (ICCS), Dirk-Jan van de Ven (BC3), Shivika Mittal (CICERO), Anastasios Karamaneas (ICCS), Thomas Nikolakakis (ICCS), Francesco Gardumi, Konstantinos Koasidis (ICCS), Alexandros Nikas (ICCS)

Abstract: Presented by Natasha Frilingou (Institute of Communication and Computer Systems).

Conference: EGU General Assembly 2024

Date: 14-19 April, 2024

Venue: Vienna, Austria

Synergies: N/A

Citation (APA): Frilingou, N., van de Ven, D.-J., Mittal, S., Karamaneas, A., Nikolakakis, T., Gardumi, F., Koasidis, K., and Nikas, A.: How do interest rates affect decarbonisation pathways? A stakeholder-driven multi-model analysis., EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-17148, <https://doi.org/10.5194/egusphere-egu24-17148>, 2024. [poster]

### 3.17 Van de Ven et al. (2024) EGU General Assembly 2024 , 14-19 April, 2024

Title: Passenger transport decarbonisation under different equity considerations

Type: Poster

Authors: Dirk-Jan van de Ven (BC3), Jon Sampedro (BC3).

Abstract: Presented by Dirk-Jan van de Ven (Basque Centre for Climate Change).

Conference: EGU General Assembly 2024

Date: 14-19 April, 2024

Venue: Vienna, Austria

Synergies: N/A

Citation (APA): Van de Ven, D.-J. and Sampedro, J.: Passenger transport decarbonisation under different equity considerations, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-19615, <https://doi.org/10.5194/egusphere-egu24-19615>, 2024. [poster]

### 3.18 García-Muros et al. (2024) EGU General Assembly 2024 , 14-19 April, 2024

Title: Can energy and environmental taxation be progressive in the EU?

Type: Presentation

Authors: Xaquín García-Muros (BC3), Eva Alons-Epelde (BC3), Mikel González-Eguino (BC3), Alejandro Rodríguez-Zúñiga (BC3)

Abstract: Presented by Xaquín García-Muros (Basque Centre for Climate Change).

Conference: EGU General Assembly 2024

Date: 14-19 April, 2024

Venue: Vienna, Austria

Synergies: N/A

Citation (APA): García-Muros, X., Alonso-Elpelde, E., González-Eguino, M., and Rodríguez-Zúñiga, A.: Can energy and environmental taxation be progressive in the EU?, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-10785, <https://doi.org/10.5194/egusphere-egu24-10785>, 2024. [presentation]

### 3.19 Alonso-Elpelde et al. (2024) EGU General Assembly 2024 , 14-19 April, 2024

Title: MEDUSA – Modelling Equity and Distributional impacts for Socioeconomic Analysis

Type: Poster

Authors: Xaquín García-Muros (BC3), Eva Alonso-Elpelde (BC3), Mikel González-Eguino (BC3), Alejandro Rodríguez-Zúñiga (BC3)

Abstract: Presented by Eva Alonso-Elpelde (Basque Centre for Climate Change).

Conference: EGU General Assembly 2024

Date: 14-19 April, 2024

Venue: Vienna, Austria

Synergies: N/A

Citation (APA): García-Muros, X., Alonso-Elpelde, E., González-Eguino, M., and Rodríguez-Zúñiga, A.: Can energy and environmental taxation be progressive in the EU?, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-10785, <https://doi.org/10.5194/egusphere-egu24-10785>, 2024. [presentation]

### 3.20 Sampedro et al. (2024) EGU General Assembly 2024 , 14-19 April, 2024

Title: Incorporating equity, gender, health and other co-benefits into NEXUS and IAM research

Type: Poster

Authors: Jon Sampedro (BC3), Zarrar Khan, Shivika Mittal (CICERO), Jarmo Kikstra

Abstract: Presented by Jon Sampedro (Basque Centre for Climate Change).

Conference: EGU General Assembly 2024

Date: 14-19 April, 2024

Venue: Vienna, Austria

Synergies: N/A

Citation (APA): Sampedro, J., Khan, Z., Mittal, S., Kikstra, J. (2024). Incorporating equity, gender, health and other co-benefits into NEXUS and IAM research, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr, 2024, ITS3.27/ERE6.6 [session]

### 3.21 Vienni-Baptista (2024) Annual Conference – Daylight Academy and Velux Stiftung (Switzerland), 30-31 May, 2024

|                 |                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Daylight in the service of Sustainable Development Goals: a colourful spectrum of opportunities                                                                                                                                        |
| Type            | Presentation                                                                                                                                                                                                                           |
| Authors:        | Bianca Vienni-Baptista (ETH)                                                                                                                                                                                                           |
| Abstract:       | Presented by Bianca Vienni-Baptista (Federal Institute of Technology Zurich).                                                                                                                                                          |
| Conference:     | Annual Conference – Daylight Academy and Velux Stiftung (Switzerland)                                                                                                                                                                  |
| Date:           | 30-31 May, 2024                                                                                                                                                                                                                        |
| Venue:          | Trondheim, Norway                                                                                                                                                                                                                      |
| Synergies:      | N/A                                                                                                                                                                                                                                    |
| Citation (APA): | Vienni-Baptista, B. (2024). Daylight in the service of Sustainable Development Goals: a colourful spectrum of opportunities, Annual Conference – Daylight Academy and Velux Stiftung (Switzerland), Trondheim, Norway, 30–31 May, 2024 |

### 3.22 Mekki et al. (2024) European Climate and Energy Modelling Platform 2024 (ECEMP), October 16-17, 2024

|                 |                                                                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Estimating climate damage functions by type of damage for EU countries                                                                                                                        |
| Type            | Presentation                                                                                                                                                                                  |
| Authors:        | Hayat Mekki (SEURECO), Baptiste Boitier (SEURECO) et al.                                                                                                                                      |
| Abstract:       | Presented by Hayat Mekki (SEURECO)                                                                                                                                                            |
| Conference:     | European Climate and Energy Modelling Platform 2024 (ECEMP 2024)                                                                                                                              |
| Date:           | 16-17 October, 2024                                                                                                                                                                           |
| Venue:          | Hybrid (Brussels and Online)                                                                                                                                                                  |
| Synergies:      | N/A                                                                                                                                                                                           |
| Citation (APA): | Mekki, H., et al. (2024). Estimating climate damage functions by type of damage for EU countries. European Climate and Energy Modelling Platform 2024 (ECEMP), October 16-17, 2024, Brussels. |

### 3.23 Vielle et al. (2024) European Climate and Energy Modelling Platform 2024 (ECEMP), October 16-17, 2024

|          |                                                                                                        |
|----------|--------------------------------------------------------------------------------------------------------|
| Title:   | Trade War to Cooperation: Scrutinizing China's strategies to the EU Carbon Border Adjustment Mechanism |
| Type     | Presentation                                                                                           |
| Authors: | Marc Vielle (SEURECO), Sigit Perdana (SEURECO)                                                         |

|                 |                                                                                                                                                                                                                                |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Abstract:       | Presented by Marc Vielle (EPFL)                                                                                                                                                                                                |
| Conference:     | European Climate and Energy Modelling Platform 2024 (ECEMP 2024)                                                                                                                                                               |
| Date:           | 16-17 October, 2024                                                                                                                                                                                                            |
| Venue:          | Hybrid (Brussels and Online)                                                                                                                                                                                                   |
| Synergies:      | N/A                                                                                                                                                                                                                            |
| Citation (APA): | Vielle, M., et al. (2024). Trade War to Cooperation: Scrutinizing China's strategies to the EU Carbon Border Adjustment Mechanism. European Climate and Energy Modelling Platform 2024 (ECEMP), October 16-17, 2024, Brussels. |

### 3.24 Sechi et al. (2024) Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | Enhancing and opening Integrated Assessment Models for climate policy: the OMNIA Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Type            | Poster                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Authors:        | Sonja Sechi, E4SMA, Italy; Alessandro Chiodi, E4SMA, Italy; Marie Pied, ESMIA Consultants, Canada; Shivika Mittal, Cicero, Norway; Pietro Lubello, UCL Energy Institute, University College London, UK; Maria Ioanna Malliaroudaki, Imperial College London, Chemical Engineering Department, UK; Serguey Maximov Gajardo, UCL Institute for Sustainable Resources, University College London, UK; James Price, UCL Energy Institute, University College London, UK; Tommaso Pillon, E4SMA, Italy; Dan Zhang, UCL Energy Institute, University College London, UK; Isabela Butnar, E4SMA, Italy; Alvaro Calzadilla, UCL Institute for Sustainable Resources, University College London, UK; Steve Pye, UCL Energy Institute, UCL, UK; Adam Hawkes, Imperial College London, Chemical Engineering Department, UK; Maurizio Gargiulo, E4SMA, Italy. |
| Abstract:       | Presented by Sonja Sechi (E4SMA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Conference:     | Seventeenth IAMC Annual Meeting (IAMC2024)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Date:           | 4-6 November, 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Venue:          | Yonsei University, Seoul, South Korea.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Synergies:      | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Citation (APA): | Sechi, S., et al. (2024). Enhancing and opening Integrated Assessment Models for climate policy: the OMNIA Model. Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024, Seoul, South Korea.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

### 3.25 Chiodi et al. (2024) Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024

|        |                                                                                                                                           |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Title: | Leveraging Open-Source Modelling for Global Energy System Optimization with TIMES-GEO<br>Global model: an application for South-East Asia |
| Type   | Poster                                                                                                                                    |

Authors: Alessandro Chiodi, E4SMA S.r.l., Italy; Sonja Sechi, E4SMA S.r.l., Italy; Tommaso Pillon, E4SMA S.r.l., Italy; Luca Faus, E4SMA S.r.l., Italy; Brian Ó Gallachóir, MaREI Centre, Environmental Research Institute, University College Cork, Ireland; Maurizio Gargiulo, E4SMA S.r.l., Italy.

Abstract: Presented by Sonja Sechi (E4SMA)

Conference: Seventeenth IAMC Annual Meeting (IAMC2024)

Date: 4-6 November, 2024

Venue: Yonsei University, Seoul, South Korea.

Synergies: N/A

Citation (APA): Chiodi, A., et al. (2024). Leveraging Open-Source Modelling for Global Energy System Optimization with TIMES-GEO. Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024, Seoul, South Korea.

### 3.26 Boespflug et al. (2024) Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024

Title: Enhancing CLEW Model for Ethiopia: Long-term energy analysis and impacts

Type: Presentation

Authors: Claire Boespflug, KTH Royal Institute of Technology, Sweden; Francesco Gardumi, KTH Royal Institute of Technology, Sweden; Pegah Atarian, KTH Royal Institute of Technology, Sweden; Alexandros Nikas, ICCS, Greece

Abstract: Presented by Alexandros Nikas (ICCS)

Conference: Seventeenth IAMC Annual Meeting (IAMC2024)

Date: 4-6 November, 2024

Venue: Yonsei University, Seoul, South Korea.

Synergies: HE IAM COMPACT (GA: 101056306)

Citation (APA): Boespflug, C., et al. (2024). Enhancing CLEW Model for Ethiopia: Long-term energy analysis and impacts. Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024, Seoul, South Korea.

### 3.27 Koasidis et al. (2024) Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024

Title: A new approach to optimising progress in non-climate sustainability indicators associated with varying sectoral mitigation efforts for different carbon budgets

Type: Presentation

**Authors:** Konstantinos Koasidis, EPU-ICCS, Greece; Natasha Frilingou, EPU-ICCS, Greece; Dirk-Jan Van de Ven, BC3, Spain; Georgios, Xexakis, Holistic S.A., Greece; Jon Sampedro, BC3, Spain; Clàudia Rodés Bachs, BC3, Spain; Theo Rouhette, BC3, Spain; Russel Horowitz, BC3, Spain; Christos, Petkidis, Holistic S.A., Greece; Charalampos Platias, Panteion University, Greece; Alexandros Nikas, EPU-ICCS, Greece

**Abstract:** Presented by Konstantinos Koasidis (ICCS)

**Conference:** Seventeenth IAMC Annual Meeting (IAMC2024)

**Date:** 4-6 November, 2024

**Venue:** Yonsei University, Seoul, South Korea.

**Synergies:** HE IAM COMPACT (GA: 101056306)

**Citation (APA):** Koasidis, K., et al. (2024). A new approach to optimising progress in non-climate sustainability indicators associated with varying sectoral mitigation efforts for different carbon budgets. Seventeenth IAMC Annual Meeting (IAMC), November 4-6, 2024, Seoul, South Korea.

## 4 Newsletters & Press Releases

Towards disseminating and communicating the project's outputs and scientific insights, DIAMOND releases regular newsletters and press releases to the project's subscribers. This section aims to present all the relevant communications shared so far, including their title, headline, and URL for viewing directly online. The project's first newsletter was distributed in April 2023, after the project's website was launched and DIAMOND's Communication, Dissemination and Exploitation (CDE) plan was composed.

### 4.1 April 2023

Title: DIAMOND News: April 2023

Items: Project Presentation; Visual Identity; Website; Kick-off meeting; OMNIA Kick-off meeting

Link: <https://app.mailerlite.com/g2y0s5v5t3>



### DIAMOND – “Delivering the next generation of open Integrated Assessment MODEls for Net-zero, sustainable Development”

The DIAMOND project, funded by the European Union's Research and Innovation HORIZON EUROPE programme, aims to contribute to the development of the next generation of fully open IAMs, which will be sufficiently equipped to scientifically underpin and support an accelerated transition towards circular, resilient, desirable, and sustainable climate neutrality.

The project's activities can be broken down into five components: (i) **Codesign** with stakeholders; (ii) **Update & Upgrade** core models; (iii) **Integrate & Expand** different modules; (iv) **Apply & Explore** different groundbreaking scenarios; and finally (v) **Open** the modelling 'black-box'!

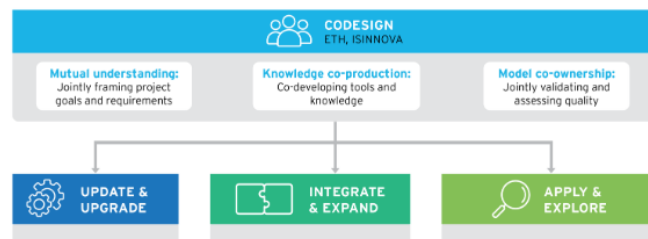


Figure 17. Preview of April 2023 Newsletter

## 4.2 June 2023

Title: DIAMOND News: June 2023

Items: Calls for IAMC and ECEMP; CLEWs-EU Kick-off meeting; General Assembly in Bilbao; GCAM-Europe Kick-off meeting

Link: <https://preview.mailerlite.com/m6x2d9z8l8>



### Calls for the 2023 meetings of the Integrated Assessment Modeling Consortium (IAMC) and the European Climate and Energy Modelling Platform (ECEMP)



The Sixteenth Meeting of the IAMC will be held on November 14-16, 2023, at the Hilton Molino Stucky, Venice, Italy. Its purpose is to present and discuss the state of the art in integrated assessment modelling, review the status of ongoing community activities, facilitate interaction with collaborating communities, and evaluate and revisit the priorities of the integrated assessment community. For more information, please see [here](#).

Similarly, the annual ECEMP conference will be held online on October 5-6, 2023, bringing together Europe's climate and energy modelling community

Figure 18. Preview of June 2023 Newsletter

### 4.3 September 2023

Title: DIAMOND News: September 2023

Items: 2023 Summer School on IAMs; Workshop on finance, labour, and consumer heterogeneity; Participation in the GCAM Annual Meeting

Link: <https://preview.mailerlite.com/i2q8h8t4o3>



#### Participation in the 2023 Summer School on Integrated Assessment Models, in July 2023



DIAMOND partners took part in a Summer School on Integrated Assessment Models, which was organised by CMCC Foundation, RFF-CMCC European Institute on Economics and the Environment (EIEE) as a synergy of EU-funded projects [NAVIGATE](#) and [ENGAGE](#), at Lake Como, Villa del Grumello, on July 3-7, 2023.

Figure 19. Preview of September 2023 Newsletter

## 4.4 November 2023

Title: DIAMOND Press Release: November 2023

Headline: From 'Fit-for-55' to net zero: Our new study on the EU's path to climate neutrality by 2050

Link: <https://preview.mailerlite.com/d9s8h2x5p3>



### From 'Fit-for-55' to net zero: Our new study on the EU's path to climate neutrality by 2050

The EU has committed to becoming a net-zero economy by 2050 and achieve 55% emissions cuts in 2030, with many Member States having integrated this goal into national strategies. However, the bloc's path toward achieving these two targets and bridging their gap through intermediate milestones remains unclear.

In our new study, published in Joule ([here](#)), we use five whole-system climate-economy models (GCAM, GEMINI-E3, ICES-XPS, EU-TIMES, NEMESIS) and two sectoral models (ALADIN, FORECAST), representing a wide range of economic theories and thereby enhancing the robustness of and confidence in the produced knowledge, to explore how the EU can keep net zero within reach by mid-century, offering insights into intermediate milestones and implications at sectoral and national levels.

Our results indicate that a 62% emissions reduction in the Emissions Trading System (EU-ETS) and 40% in the Effort Sharing Regulation (ESR) compared with 2005 levels, as adopted in the context of 'Fit for 55', are indeed in line with cost-optimal pathways toward the bloc's 55% emissions cuts target by 2030. However, to keep the goal of NZE within grasp, we also robustly indicate that the EU should start aiming for net zero in the EU-ETS sectors and over 50% emissions reductions in the ESR sectors by 2040. This entails total decarbonisation of electricity and complete phaseout of unabated coal power

**Figure 20.** Preview of November 2023 Press Release

## 4.5 December 2023 (Press Release)

Title: DIAMOND Press Release: December 2023

Headline: DIAMOND at COP 28, Dubai, United Arab Emirates

Link: <https://preview.mailerlite.com/c7z4b7z8s2>



### DIAMOND at COP 28, Dubai, United Arab Emirates

From **30 November to 12 December 2023**, delegates from nearly 200 countries will come together in **Dubai, United Arab Emirates (UAE)** for the **28<sup>th</sup> session of the Conference of the Parties of the UNFCCC (COP 28)** to deliberate on climate action strategies and commitments that will hopefully shape a better future for our planet. Importantly, this year's Conference marks the conclusion of the first Global Stocktake (GST), a comprehensive assessment of the progress made in achieving the goals of the Paris Agreement. High expectations on the climate finance front (see for example the [agreed deal on the loss and damage fund](#)) and stronger, "phasing out" language with regard to fossil fuels.

Committed to updating, upgrading, and fully opening Integrated Assessment Models that are emblematic in relevant scientific and policy processes, **DIAMOND** will actively participate at COP 28. The project will co-host a panel discussion on "[Bridging the gap between the 'Fit for 55' package and the 2050 ambition of a net-zero EU economy](#)" at the [Greek Pavilion](#), alongside the Horizon Europe [IAM-COMPACT](#) project and the [Hellenic Society for the Environment and Cultural Heritage](#). The scope of this side-event will be to stress potential challenges to delivering on the EU's roadmap towards net zero, to fuel the policy debate on critical technologies, including but not limited to gas in the light of the recent energy supply crisis, and to exchange ideas.

**Figure 21.** Preview of December 2023 Press Release

## 4.6 December 2023 (Newsletter)

Title: DIAMOND News: December 2023

Items: Survey on Inclusivity; COP28 side-event; Publication on EU's path to net zero; Participation on IAMC 2023 and ECEMP 2023

Link: <https://preview.mailerlite.com/x8p3i2e4r7>



### Survey on Engagement and Inclusivity: Advancing Participatory Modelling for Net-Zero Sustainable Development



DIAMOND, supported by H2020 **PARIS REINFORCE** and Horizon Europe **IAM COMPACT**, is launching a survey to understand how to conceptualise and establish an inclusive modelling environment, ensuring that diverse perspectives, knowledge, and interactions are integrated into the modelling process. The aim is to enhance the credibility and effectiveness of model

Figure 22. Preview of December 2023 Newsletter

## 4.7 March 2024

Title: DIAMOND Press Release: March 2024

Headline: DIAMOND wishes you a happy Easter Break!

Link: <https://preview.mailerlite.com/l3f3g6j3q0>



**DIAMOND wishes you a happy Easter Break!**



The DIAMOND consortium would like to wish everyone a restful Spring break and, to those celebrating, a Happy Easter, filled with joy and beautiful memories!

We, at the DIAMOND project, are preparing exciting activities for the next few months and we look forward to announcing them in our April newsletter—stay tuned!

**Figure 23.** Preview of March 2024 Press Release

## 4.8 April 2024

Title: DIAMOND News: April 2024

Items: Engagement activities announcement; EGU 2024; Community Resources

Link: <https://preview.mailerlite.com/c4d2j8b2i0>



### Stay tuned for DIAMOND's engagement activities



As DIAMOND is moving towards its second stage of operation, a series of workshops will be organised, first to facilitate model co-development (i.e., designing and expanding modelling capabilities with the community), and second to enable co-creation (i.e., using the models with and for the community to address pertinent societal research and policy questions).

In the **first workshop**, which is scheduled for **mid-June**, we aim to foster the right conditions for modellers and stakeholders to work together toward mutually understanding which issues are useful and feasible to analyse with the available IAM capabilities, and consequently guiding planned

**Figure 24.** Preview of April 2024 Newsletter

## 4.9 May 2024

Title: DIAMOND Press Release: May 2024

Headline: The call for papers on the ECEMP conference is now open!

Link: <https://preview.mailerlite.com/u5m1d0h7r6>



**The call for papers on the ECEMP  
conference is now open!**

**ECEMP 2024**  
**Energy Transition Scenarios for a Climate Neutral Europe**  
October 2024 (day tbd), Brussels and online



The European Climate and Energy Modelling Platform ([ECEMP](#)) is an emblematic conference on exchanging research, development, and practice of energy and climate modelling in Europe. Towards fostering cooperation in the European modelling community, DIAMOND actively supports the European Climate and Energy Modelling Forum's endeavour.

The hybrid conference will take place in October 2024 (mostly online with few hybrid sessions), featuring segments dedicated to policy-relevant research results as well as in-depth discussions on the latest trends in modelling development. In particular, this year's theme focuses on:

**Figure 25.** Preview of May 2024 Press Release

## 4.10 August 2024

Title: DIAMOND News: August 2024

Items: Requirements Workshop; Launch of aggregated CLEWs-EU; Update on Community Resources

Link: <https://preview.mailerlite.com/d9z1q3j9f5>



### DIAMOND's "Requirements Workshop" – 13 September 2024



Figure 26. Preview of August 2024 Newsletter

## 4.11 October 2024

Title: DIAMOND News: October 2024  
Items: Announcement for First Foresight Workshop  
Link: <https://preview.mailerlite.com/j6n4d1g8w5>



### DIAMOND's "1<sup>st</sup> Foresight Workshop" – 12 November 2024



Figure 27. Preview of October 2024 Newsletter

## 4.12 November 2024

Title: DIAMOND News: November 2024  
Items: Strengthening modelling capabilities through stakeholder collaboration  
Link: <https://app.mailerlite.com/s4c1q3c4f4>



### Strengthening modelling capabilities through stakeholder collaboration

Towards [DIAMOND's](#) goal of updating, upgrading, and fully opening six integrated assessment models (IAMs), we are happy to report on our relevant stakeholder engagement activities of the past few months.

Our aim has been two-fold: first, to ensure **models are co-developed**, by informing our model development strategy based on stakeholder insights; and, second, to pave the way towards **co-creation** of scenario exercises and model **co-use** based on the diverse societal priorities.

**Figure 28.** Preview of November 2024 Press Release

## 5 Presentations in policy events and stakeholder workshops

This section presents all policy/stakeholder events and workshops that the project has organised or participated in.

### 5.1 DIAMOND in the 2023 GCAM Annual Meeting, 6-8 June 2023

The Joint Global Change Research Institute's (JGCRI) annual 'GCAM Community Modelling Meeting' was held virtually on June 6-8, 2023.

The Meeting provides a forum for the GCAM community to share and promote the exploitation of the latest developments and current uses of GCAM. For those new to GCAM, the Meeting continued to serve as an excellent in-depth opportunity to learn and gain a better understanding of the model.

DIAMOND partners from BC3, UMD, and ICCS actively participated in the three-day workshop, paving the way for the introduction of GCAM-Europe, which was notably referenced as a promising next step, to the community.

Colleagues Claudia Rhodes, Jon Sampedro, and Dirk-Jan Van de Ven (BC3) also presented their respective GCAM-related advancements in the poster session with the following studies:

- gcamreport: An R tool to Process and Standardise GCAM Outputs
- Residential Energy Demand, Emissions, and Expenditures at Regional and Income-decile Level for Alternative Futures
- Implementation of Current Policies in GCAM

More information on the conference and the model can be found [here](#) and [here](#), respectively.

### 5.2 DIAMOND in the Summer School on Integrated Assessment Models, 3-7 July 2023

DIAMOND partners took part in a Summer School on Integrated Assessment Models, which was organised by CMCC Foundation, RFF-CMCC European Institute on Economics and the Environment ([EIEE](#)) as a synergy of EU-funded projects [NAVIGATE](#) and [ENGAGE](#), at Lake Como, Villa del Grumello, on July 3-7, 2023.

The objective of the summer school was to create a community of young scholars from a broad range of disciplines (climate, ecology, economy, energy, political science) actively working on modelling human activities and the earth system in an Integrated Assessment Modelling framework.

Claudia Rhodes from BC3 participated in both the training and the interactive poster session.

More information on the conference can be found [here](#).

### 5.3 DIAMOND Workshop on finance, labour, and consumer heterogeneity in IAMs, 21-22 September 2023

On September 21-22, 2023, a two-day project meeting took place in Maastricht at the premises of the University of Maastricht (UM) to discuss aspects related to finance, labour, and consumer demand as well as to their integration in the DIAMOND ensemble of IAMs.

During the first day, colleagues from UM, led by Prof. Mark Sanders and Prof. Tania Treibich, had the opportunity to present their work so far, including the current status in each domain, as well as ideas for DIAMOND to go

beyond the state-of-the-art. In particular, Prescott Morley (UM) discussed issues related to final demand in energy transitions and the heterogeneity and complexity as sources of frictions, Sasha Serebriakova (UM) took aim at the role of finance in the energy transition focusing on credit market frictions and imperfections, while Eoghan Michael O’Connell (UM) talked about labour in the energy transition delving into the impact of generation, switching, and mobility.

During the second day, it was the modelling teams’ opportunity to present their models and envisaged improvements on them in these directions, with Dr. Baptiste Boitier (SEURECO), Dr. Marc Vielle (EPFL), Dr. Constantinos Taliotis (Cyl), Dr. Gabriele Casseti (E4SMA), and Dr. Anastasios Giannousakis (ICCS-E3M) presenting NEMESIS, GEMINI-E3, CLEWs, OMNIA, and OPEN-PROM, respectively, and particularly focusing on synergies among these IAMs with the modules to be developed in the project for finance, labour, and consumer demand towards enhancing their capabilities.

## 5.4 DIAMOND side-event at COP28: the EU’s path to net zero, 5 December 2023

The EU has committed to becoming a net-zero economy by 2050, with many member states having integrated this goal into national strategies. The bloc’s path towards delivering on this ambition, however, remains unclear.

Alongside the Horizon Europe project [IAM COMPACT](#) as well as the [Hellenic Society for the Environment and Cultural Heritage](#), the DIAMOND consortium is co-hosting a panel discussion at the Greek Pavilion at COP28, in Dubai (15.00 GMT+4), aiming to explore the uncertainties and challenges ahead for the EU’s journey to net zero in 2050, drawing on the findings of our flagship study in Joule ([here](#)).

The discussion will first explore the feasibility of key aspects of the Fit for 55 policy package and question the energy-system requirements to reaching net zero by 2050, across sectors and member states. Special attention will be given to strategic decisions that the EU must make today, especially relating to technological investments and associated enabling environments, as well as to key intermediate milestones on the way to net zero.

In turn, the panel discussion will also dive deeper into the role of carbon capture and storage (CCS) in abating residual fossil fuels (based on [this working paper](#)), as well as into that of natural gas, notably in the light of the energy crisis in Europe (based on [this study](#) and the discussion [here](#)).

The key objectives of this COP28 side-event will be to (a) highlight potential challenges to the EU’s path to net zero, (b) fuel the policy debate on critical technologies, and (c) share knowledge.

The panel discussion will be moderated by Prof. Ryna Yiyun Cui, (*University of Maryland, US*) and its agenda includes the following interventions:

- “Paving the way to net zero in the EU: key technologies, strategic decisions, and a roadmap” Speaker: Haris Doukas, *Professor at the National Technical University of Athens (NTUA), President of the Society for the Environment and Cultural Heritage (ELLET) Energy Council, Mayor-Elect of the Municipality of Athens, Greece.*
- “Defining ‘Abated Fossil Fuels’ and identifying their role in the EU’s long-term ambition” Speaker: Alaa Al Khourdajie, *Research Fellow at the Department of Chemical Engineering of Imperial College London (Imperial)*
- “The role of gas in the EU’s net-zero trajectory: thinking in the context of the energy crisis” Speaker: Steve Pye, *Assoc. Professor at the UCL Energy Institute (University College London)*

You may find more information in the agenda [COP28 side event](#).

## 5.5 DIAMOND “Requirements Workshop” – 13 September 2024

DIAMOND held a “Requirements Workshop” on 13 September 2024, from 2:00 PM to 5:00 PM (CEST), online. The Requirements Workshop was the first of a sequence of three strategic foresight workshops organised by the project, and it served as a foundational step in aligning stakeholder needs and expectations with our model development objectives.

With DIAMOND being primarily a model development project, in this Requirements Workshop, we aimed to leverage stakeholders’ experience and expertise and, through a transdisciplinary process, co-develop models that are useful and transparent.

The participatory workshop was structured around group discussion and design activities and brought together researchers from the wider IAM community and relevant experts from other scientific disciplines (e.g., psychology, behavioural economics, labour economics), as well as from policy, industry, and civil society. Participants and modellers interacted to actively explore and prioritise broad and overarching questions stemming from various sectors and disciplines and help us translate technical insights into accessible and actionable strategies to enhance our modelling capabilities.

The outcome of the workshop was a set of stakeholder-driven priorities that will be used by DIAMOND to guide model refinements and scenario design, ensuring that research efforts are aligned with pertinent stakeholder needs.

## 5.6 DIAMOND Workshop on labour, finance, and behavioral aspects (MORSE Conference) – 23-25 October 2024

The Department of Macro, International, and Labour Economics (MILE) at Maastricht University, hosted an open workshop as a parallel event to the MORSE Conference taking place in Maastricht (23-25 October 2024) focusing on the extensions in Integrated Assessment Models (IAMs) developed by DIAMOND, touching on labour, finance, and behavioural aspects.

## 5.7 DIAMOND “1<sup>st</sup> Foresight Workshop” – 12 November 2024

DIAMOND held its second workshop on 12 November 2024, from 3:00 PM to 5:00 PM (CET), online. This ‘1<sup>st</sup> Foresight Workshop’ was the second of a sequence of three strategic workshops organised by the project, and it envisaged co-creating scenarios of incremental vs transformative change and transition pathways to be represented in enhanced IAM applications.

In this workshop, we applied the Three Horizons participatory foresight framework, a tool for structuring future thinking, to allow modellers and stakeholders to work together to respond to pertinent questions regarding signs of crises in our current trajectory as well as elements to retain in the current system to ensure competitiveness and the seeds of change that should be pursued urgently to lead to desirable and sustainable futures.

The expected outcome of this series of workshops will be a clear set of stakeholder-driven priorities that will be used by DIAMOND to guide model refinements and scenario design, ensuring that research efforts are aligned with pertinent stakeholder needs.

## 5.8 Overall DIAMOND participation in communities of practice and synergetic events

Until November 2024, in the context of WP6 and in an endeavour to share scientific insights and broaden the project’s horizons, project partners have represented DIAMOND in 5 communities of practice events and 2 events

organised by sister projects.

Specifically, DIAMOND partners have been very active from the beginning of the project, participating in the EFECT end-of-year meeting on the 19<sup>th</sup> of December 2022. Moreover, they have participated in an event hosted by the community for participatory energy system modelling, on the 27<sup>th</sup> of March 2023 as well as a GCAM Training Seminar on the 28<sup>th</sup> and 29<sup>th</sup> of March. In addition, they have participated in the 2023 GCAM Annual Meeting (7-8 June 2023) and the EFECT summer meeting 2023 (28 June 2023).

Lastly, DIAMOND consortium members have participated in a WorldTrans webinar, on the 17<sup>th</sup> of March 2024 and a MAIA event on communication on the 30<sup>th</sup> of April, 2024, enhancing the project's synergies with other sister projects.

## 6 List of commentaries & other publications in the Press

This section lists all the commentaries and other publications made in media outlets by project partners, communicating the project's scientific processes and outcomes.

### 6.1 Al Khourdajie et al. (2023), The Conversation

|                 |                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title:          | The COP28 climate agreement is a step backwards on fossil fuels                                                                                                                                                                                                                                                                                                   |
| Authors:        | Alaa Al Khourdajie (Imperial), Chris Bataille, Lars J Nilsson                                                                                                                                                                                                                                                                                                     |
| Medium:         | The Conversation                                                                                                                                                                                                                                                                                                                                                  |
| Abstract:       | In the aftermath of our COP28 side event, Dr. Alaa Al Khourdajie et al. discuss the result of COP28 on fossil fuels, and delve on the 'Abated' v 'unabated' discussion that draws from the presentation delivered in the side event, stressing that the outcome falls short on the urgency of drastically reducing fossil fuel consumption.                       |
| Keywords:       | COP28; fossil fuels                                                                                                                                                                                                                                                                                                                                               |
| Link:           | <a href="https://theconversation.com/the-cop28-climate-agreement-is-a-step-backwards-on-fossil-fuels-219753">https://theconversation.com/the-cop28-climate-agreement-is-a-step-backwards-on-fossil-fuels-219753</a>                                                                                                                                               |
| First Online:   | 13 December 2023                                                                                                                                                                                                                                                                                                                                                  |
| Citation (APA): | Al Khourdajie, A., Bataille, C., & Nilsson, L.J. (2023). The COP28 climate agreement is a step backwards on fossil fuels. The Conversation. <a href="https://theconversation.com/the-cop28-climate-agreement-is-a-step-backwards-on-fossil-fuels-219753">https://theconversation.com/the-cop28-climate-agreement-is-a-step-backwards-on-fossil-fuels-219753</a> . |

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# THE CONVERSATION

Academic rigour, journalistic flair



## The COP28 climate agreement is a step backwards on fossil fuels

Published: December 13, 2023 8.00pm CET

Countries agreed to 'transition away' from fossil fuels, but oil and gas firms are ramping up production. James Gabbett/Alamy Stock Photo

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The COP28 climate summit in Dubai has adjourned. The result is “[The UAE consensus](#)” on fossil fuels.

This text, agreed upon by delegates from nearly 200 countries, calls for the world to move “away from fossil fuels in energy systems in a just, orderly and equitable

**Authors**



**Alaa Al Khourdajie**  
Research Fellow, Department of Chemical Engineering, Imperial College London



**Chris Bataille**

**Figure 29.** Preview of article 'The COP28 climate agreement is a step backwards on fossil fuels' in The Conversation

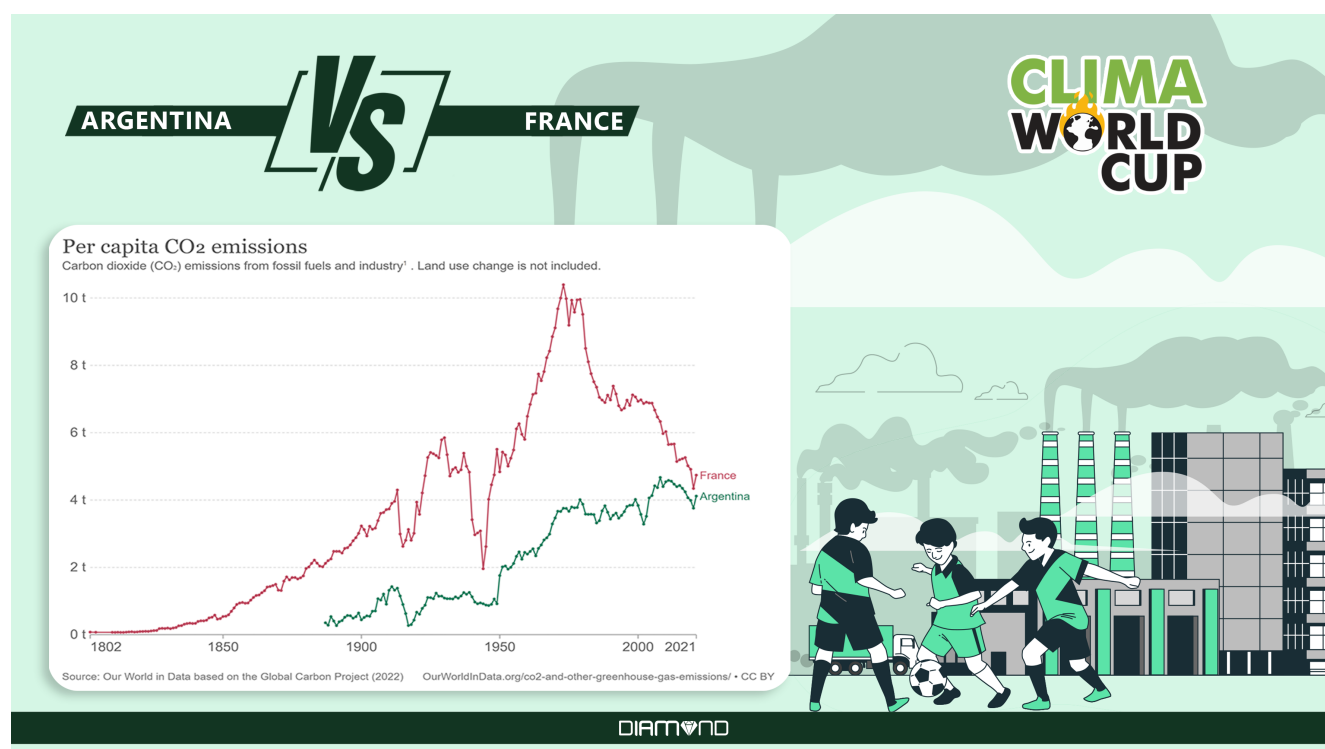
## 7 List of infographics

This section includes info on all the infographics created and published by the project on its social media and other platforms. For the time being, the project has shared a series of infographics since it still has limited modelling outputs.

### 7.1 Clima World Cup 2022 Series

DIAMOND, in an endeavour to engage social media users in sustainability matters in a relevant manner, launched a series of infographics comparing football teams in regard to their CO<sub>2</sub> emissions per capita. These comparisons were drawn from the match-ups that were taking place during the FIFA World Cup 2022 in Qatar and were uploaded on a daily basis before each match. These infographics were uploaded to the project's X (formerly known as Twitter) account and are also available on the project's [website](#). The database used for these infographics was the "Our World in Data" website, which provided all the necessary information. An example infographic is demonstrated below, comparing the two finalists of the FIFA World Cup 2022, France and Argentina. The infographic below was accompanied by the following description:

*"The grand final of this FIFA World Cup is finally happening with two of the world's best teams, Argentina and France, aiming for the trophy, in a tremendously intense game in both football and emissions terms."*



**Figure 30.** Example of the Clima World Cup Infographics series