



PARIS
REINFORCE



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REINFORCE

30/11/2020

**D8.9 INFOGRAPHICS, VIDEOS AND
PUBLICATIONS AIMED AT POLICYMAKERS AND
STAKEHOLDERS**

WP8 – Communication, Dissemination, & Exploitation

Version: 1.00

www.paris-reinforce.eu



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| Work Package | WP8 - Communication, Dissemination & Exploitation | | | |
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| Keywords | Infographics; videos; publications; policymakers; stakeholders | | | |



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

The present deliverable can be used by anyone interested in the PARIS REINFORCE scientific outputs, in terms of videos, newsletters, press releases, presentations, and other publications aimed at policymakers and non-scientific audiences, in order to direct them into exploring and effectively exploiting the project's outcomes.

3. Short summary of results (<250 words)

To mobilise acquired, processed, and accumulated knowledge for policy debate and informed business and civil society, PARIS REINFORCE has ensured timely publications targeted at policymakers and stakeholders. This deliverable presents the most impactful means used in PARIS REINFORCE, namely the distribution of newsletters and press releases; the publication of commentaries and other publications in the press (e.g. non-scientific journals); policy briefs; videos; infographics; as well as presentations in policy events.

By November 2020, a total of eight articles/commentaries have been published in the press and non-scientific news media (including New Europe, The Parliament Magazine, the Conversation, etc.), enhancing the visibility and outreach of the project to non-scientific audiences. Also, a total of eleven newsletters and press releases have been communicated by the project to a very large and diverse stakeholder pool, while one video and fifteen infographics (including two dynamic/interactive and customisable, hosted in the I²AM PARIS platform) have been created and shared. Finally, despite the rich and diverse output aimed at policymakers and stakeholders in the virtual domain, the project has had limited presence in external/policy events. This is attributed to the COVID-19 pandemic, due to which most events during the first half of the project have been postponed and/or cancelled. Nevertheless, the project has had an impact in major national policy events, e.g. in Greece and Japan.









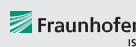









4. Evidence of accomplishment

This report, and all material in the listed links (in press, the website, YouTube, etc.), for each category of publication.



Preface

PARIS REINFORCE will develop a novel, demand-driven, IAM-oriented assessment framework for effectively supporting the design and assessment of climate policies in the European Union as well as in other major emitters and selected less emitting countries, in respect to the Paris Agreement. By engaging policymakers and scientists/modellers, PARIS REINFORCE will create the open-access and transparent data exchange platform ²AM PARIS, in order to support the effective implementation of Nationally Determined Contributions, the preparation of future action pledges, the development of 2050 decarbonisation strategies, and the reinforcement of the 2023 Global Stocktake. Finally, PARIS REINFORCE will introduce innovative integrative processes, in which IAMs are further coupled with well-established methodological frameworks, in order to improve the robustness of modelling outcomes against different types of uncertainties.

| | | |
|--|----|---|
| NTUA - National Technical University of Athens | GR |  |
| BC3 - Basque Centre for Climate Change | ES |  |
| Bruegel - Bruegel AISBL | BE |  |
| Cambridge - University of Cambridge | UK |  |
| CICERO - Cicero Senter Klimaforskning Stiftelse | NO |  |
| CMCC - Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici | IT |  |
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| EPFL - École polytechnique fédérale de Lausanne | CH |  |
| Fraunhofer ISI - Fraunhofer Institute for Systems and Innovation Research | DE |  |
| Grantham - Imperial College of Science Technology and Medicine - Grantham Institute | UK |  |
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| IEECP - Institute for European Energy and Climate Policy Stichting | NL |  |
| SEURECO - Société Européenne d'Economie SARL | FR |  |
| CDS/UnB - Centre for Sustainable Development of the University of Brasilia | BR |  |
| CUP - China University of Petroleum-Beijing | CN |  |
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Executive Summary

To mobilise acquired, processed, and accumulated knowledge for policy debate and informed business and civil society, PARIS REINFORCE has ensured timely publications targeted at policymakers and stakeholders. This deliverable presents the most impactful means used in PARIS REINFORCE, namely the distribution of newsletters and press releases; the publication of commentaries and other publications in the press (e.g. non-scientific journals); policy briefs; videos; infographics; as well as presentations in policy events.

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1 Introduction

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2 List of commentaries & other publications in the Press

Below, we list all commentaries published in the framework of the PARIS REINFORCE project.

2.1 Peters (2020), The Conversation

- Title:** How changes brought on by coronavirus could help tackle climate change
- Authors:** Glen P. Peters (CICERO)
- Medium:** The Conversation
- Abstract:** Stock markets around the world had some of their worst performance in decades this past week, well surpassing that of the global financial crisis in 2008. Restrictions in the free movement of people is disrupting economic activity across the world as measures to control the coronavirus roll out.
- There is a strong link between economic activity and global carbon dioxide emissions, due to the dominance of fossil fuel sources of energy. This coupling suggests we might be in for an unexpected surprise due to the coronavirus pandemic: a slowdown of carbon dioxide emissions due to reduced energy consumption.
- Based on new projections for economic growth in 2020, we suggest the impact of the coronavirus might significantly curb global emissions.
- The effect is likely to be less pronounced than during the global financial crisis (GFC). And emissions declines in response to past economic crises suggest a rapid recovery of emissions when the pandemic is over.
- But prudent spending of economic stimulus measures, and a permanent adoption of new work behaviours, could influence how emissions evolve in future.
- Keywords:** Climate change; Coronavirus; Air travel; Greenhouse gas emissions; COVID-19; Working from home; Coronavirus stimulus program
- Link:** <https://theconversation.com/how-changes-brought-on-by-coronavirus-could-help-tackle-climate-change-133509>
- First Online:** March 16, 2020
- Citation (APA):** Peters, G. (2020). How changes brought on by coronavirus could help tackle climate change. The conversation. <https://theconversation.com/how-changes-brought-on-by-coronavirus-could-help-tackle-climate-change-133509>.



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How changes brought on by coronavirus could help tackle climate change

March 16, 2020 3:01pm EDT

David Sasaki/Pixco

Stock markets around the world had some of their worst performance in decades this past week, well surpassing that of the global financial crisis in 2008. Restrictions in the free movement of people is disrupting economic activity across the world as measures to control the coronavirus roll out.

There is a strong link between economic activity and global carbon dioxide emissions, due to the dominance of fossil fuel sources of energy. This coupling suggests we might be in for an unexpected surprise due to the coronavirus pandemic: a slowdown of carbon dioxide emissions due to reduced energy consumption.

Read more: 'Cabin fever': Australia must prepare for the social and psychological impacts of a coronavirus lockdown

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Author
Glen Peters
Research Director, Center for International Climate and Environment Research - Oslo

Disclosure statement
Glen Peters receives funding from the European Commission (Horizon 2020) for the project "PARIS REINFORCE" under grant agreement No. 820846.

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| Year | GDP (trillion USD) | Global fossil CO2 emissions (GtCO2/yr) |
|------|--------------------|--|
| 1971 | ~20 | ~15 |
| 1980 | ~35 | ~20 |
| 1990 | ~45 | ~25 |
| 2000 | ~60 | ~30 |
| 2010 | ~85 | ~35 |
| 2019 | ~120 | ~38 |

Global fossil CO2 emissions (vertical axis) have grown together with economic activity (horizontal axis) over extended periods of time. Glen Peters/CICERO

The world in crisis
In just a few short months, millions of people have been put into

Figure 1: Preview of article 'How changes brought on by coronavirus could help tackle climate change' in The Conversation



The PARIS REINFORCE project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 820846.

2.2 Gambhir (2020), Grantham Institute

- Title:** Coronavirus and climate change: “There is much uncertainty, and much to play for”
- Authors:** Ajay Gambhir (Grantham)
- Medium:** Grantham Institute
- Abstract:** Coronavirus is here. Its impact on our health systems, economies and behaviours cannot yet be understood, but analogies have already been drawn between this immediate challenge and the more chronic, insidious climate change challenge.
- Any broader analysis of coronavirus, beyond that which centres around how to minimise and mitigate its impact, arguably risks being insensitive or inappropriate at this time. Millions of vulnerable people of all ages are in danger and the UK’s own perennially optimistic prime minister has said that we must be prepared to lose some loved ones before their time. However, it’s critical to reflect on any lessons we might learn from coronavirus so that we can tackle climate change as effectively as possible.
- Keywords:** Climate Change; Coronavirus; COVID-19
- Link:** <https://granthaminstitute.com/2020/03/17/coronavirus-and-climate-change-there-is-much-uncertainty-and-much-to-play-for/>
- First Online:** March 17, 2020
- Citation (APA):** Gambhir, A. (2020). Coronavirus and climate change: “There is much uncertainty, and much to play for”. Grantham Institute. <https://granthaminstitute.com/2020/03/17/coronavirus-and-climate-change-there-is-much-uncertainty-and-much-to-play-for/>



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Insights from staff and students across Imperial working in climate and environment related areas

CLIMATE SCIENCE EARTH & LIFE SCIENCES HEALTH ENERGY FINANCE
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Coronavirus and climate change: "There is much uncertainty, and much to play for"

Posted on MARCH 17, 2020



(c) nito100

The Grantham Institute's [Dr Ajay Gambhir](#) blogs on how learning from the coronavirus crisis could help place the world on a firmer footing to tackle the multiple challenges we will face this century - including climate change.

Coronavirus is here. Its impact on our health systems, economies and behaviours cannot yet be understood, but analogies have already been drawn between this immediate challenge and the more chronic, insidious climate change challenge.

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First and most strikingly, experts are back on the agenda, and their place in informing public policy has been restored to some degree. In contrast to the low point of Michael Gove's [comments](#) during the Brexit campaign, listening to experts is now widely recommended. There are few, if any, coronavirus deniers and we are for the most part turning to epidemiologists to inform public policy. This is welcome, and hopefully a lesson that will be retained for the climate challenge.

Secondly, the central importance of behaviour change has been brought to the fore. The ability of people and societies to respond to threats affecting their wellbeing - as is being demonstrated across the world - is a potentially powerful response mechanism. Although it's still too early to say how persistent behaviour changes might be, it is important to capture the notion that such changes can occur when it's

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Figure 2: 'Coronavirus and climate change: "There is much uncertainty, and much to play for"' in Grantham Institute



2.3 Koberle (2020), Grantham Institute

- Title:** Coronavirus: How we emerge from this terrible crisis could push us into a better future
- Authors:** Alex Koberle (Grantham)
- Medium:** Grantham Institute
- Abstract:** The COVID-19 global pandemic is pushing institutions and governments to their limits. People are worried about their health, their families, losing their jobs and the uncertainty the future holds. The economic fallout of this crisis is still uncertain too, and we may well wake up in a few months to a world completely transformed. While the current focus should be on minimising the loss of life, governments around the world are already responding to support a faltering, if not free falling, global economy. The stimulus packages provided will total in the trillions of dollars, euros, pounds, yen, yuan, pesos and many other currencies.
- This crisis has exposed many vulnerabilities that can be traced back to the unsustainable development that has ravaged the environment, and yet failed to eradicate poverty and hunger. Governments should take a moment to reflect, learn from past mistakes and redirect development towards a sustainable future. Medical professionals are putting their lives on the line to contain the virus; decision-makers owe it to them to rebuild the world in a way that makes it more resilient to similar situations in the future. Political and financial leaders, said International Energy Agency head Dr Fatih Birol, should consider directing economic stimulus packages that “shape policies ... to step up our ambition to tackle climate change.”
- How can the government response to COVID-19 help create a more sustainable, resilient, healthy future?
- Keywords:** Climate Change; Coronavirus; COVID-19
- Link:** <https://granthaminstitute.com/2020/03/25/coronavirus-how-we-emerge-from-this-terrible-crisis-could-push-us-into-a-greener-future/>
- First Online:** March 25, 2020
- Citation (APA):** Koberle, A. (2020). Coronavirus: How we emerge from this terrible crisis could push us into a better future. Grantham Institute. <https://granthaminstitute.com/2020/03/25/coronavirus-how-we-emerge-from-this-terrible-crisis-could-push-us-into-a-greener-future/>



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Coronavirus: How we emerge from this terrible crisis could push us into a better future

Posted on MARCH 25, 2020



Engineers changing rotor blades on a wind turbine (c) Dennis Schroeder / NREL [CC BY-NC-ND 2.0](#)

The Grantham Institute's [Dr Alex Koberle](#) blogs on how the response to COVID-19 could help shape a sustainable, resilient future.

The COVID-19 global pandemic is pushing institutions and governments to their limits. People are worried about their health, their families, losing their jobs and the uncertainty the future holds. The economic fallout of this crisis is still uncertain too, and we may well wake up in a few months to a world completely transformed. While the current focus should be on minimising the loss of life, governments around the world are already responding to support a faltering, if not free falling, global economy. The stimulus packages provided will total in the trillions of [dollars](#), euros, [pounds](#), yen, yuan, pesos and many other currencies.

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How can the government response to COVID-19 help create a more sustainable, resilient, healthy future?

As central banks slash interest rates and inject cash into ailing economies, straight-up bailouts of firms should be subject to a minimum set of preconditions that help to build climate resilience.

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Figure 3: Preview of 'Coronavirus: How we emerge from this terrible crisis could push us into a better future' in Grantham Institute



2.4 Allan et al. (2020), COP26 Universities Network Briefing

- Title:** A net-zero emissions economic recovery from COVID-19
- Authors:** Jennifer Allan, Charles Donovan (Grantham), Paul Ekins, Ajay Gambhir (Grantham), Cameron Hepburn, David Reay, Nick Robins, Emily Shuckburgh (Cambridge), and Dimitri Zenghelis (Cambridge)
- Medium:** COP26 Universities Network Briefing
- Abstract:** This briefing identifies key recovery policies that the UK government could introduce to both respond to the crisis of COVID-19, and support the country in meeting its commitment to reaching net-zero emissions by 2050.
It has been produced in association with the COP26 Universities Network, a growing group of more than 30 UK-based universities working together to help deliver an ambitious outcome at the UN Climate Summit in Glasgow and beyond.
- Keywords:** Coronavirus; COVID-19
- Link:** <http://www.imperial.ac.uk/grantham/publications/a-net-zero-emissions-economic-recovery-from-covid-19.php>
- First Online:** April 15, 2020
- Citation (APA):** Allan, J., Donovan, C., Ekins, P., Gambhir, A., Hepburn, C., Robins, N., ... & Zenghelis, D. (2020). A net-zero emissions economic recovery from COVID-19. COP26 Universities Network Briefing, April. <https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-01.pdf>



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A net-zero emissions economic recovery from COVID-19

Topics: Economics and Finance, Energy and Low-Carbon Futures, Health
Type: Collaborative publications
Publication date: April 2020

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- [A net-zero emissions economic recovery from COVID-19 \[PDF\]](#)

Summary

A COP26 Universities Network Briefing

This briefing identifies key recovery policies that the UK government could introduce to both respond to the crisis of COVID-19, and support the country in meeting its commitment to reaching net-zero emissions by 2050.

It has been produced in association with the COP26 Universities Network, a growing group of more than 30 UK-based universities working together to help deliver an ambitious outcome at the UN Climate Summit in Glasgow and beyond.

A background working paper to this briefing [is available to view here](#).

Headlines

- Economic growth will be a high priority for all countries in the months and years following COVID-19. The transition to net-zero emissions can significantly contribute to the recovery.
- Lessons can be learnt from the recovery packages introduced following the 2008 financial crisis, but the COVID-19 crisis is structurally different on the demand and supply side.
- In the lead up to COP26, the UK could provide guidance and methodologies to evaluate proposed recovery packages for consistency with the Paris Agreement and net-zero emissions.
- The UK could lead by example with a recovery package including components on net-zero buildings, energy storage, clean industry, transport and greenhouse gas removal.
- Institutionally, this could be supported by establishing a ministerial Climate Change Emergency Committee along with a Net Zero Delivery Body to implement a coherent response.
- Financially, a new National Investment Bank and focus on green financial instruments could enable the process.
- Building on these domestic efforts, as COP26 President, the UK could coordinate a global response through a new flexible intergovernmental Sustainable Recovery Alliance.

Authors: [Dr Jennifer Allan](#), Cardiff University | [Dr Charles Donovan](#), Imperial College London | [Professor Paul Ekins](#), University College London | [Dr Ajay Gambhir](#), Imperial College London | [Professor Cameron Hepburn](#), University of Oxford | [Professor David Reay](#), University of Edinburgh | [Nick Robins](#), London School of Economics and Political Science | [Dr Emily Shuckburgh](#), University of Cambridge | [Dimitri Zenghelis](#), University of Cambridge

Download: [A net-zero emissions economic recovery from COVID-19 \[PDF\]](#)

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Figure 4: Preview of 'A net-zero emissions economic recovery from COVID-19' in COP26 Universities Network Briefing



2.5 Doukas et al. (2020), The Parliament Magazine

- Title:** Convergence between technological progress and sustainability is not that obvious
- Authors:** Haris Doukas (NTUA), Alexandros Nikas (NTUA), and Ajay Gambhir (Grantham)
- Medium:** The Parliament Magazine
- Abstract:** The coronavirus pandemic, like climate change, teaches us about the importance of mitigating risk to ensure our future prosperity. Should we place all our hopes on technology to deliver this safer future?
- Keywords:** Sustainability; COVID-19; Coronavirus; Greenhouse gas emissions
- Link:** <https://www.theparliamentmagazine.eu/articles/opinion/convergence-between-technological-progress-and-sustainability-not-obvious>
- First Online:** May 6, 2020
- Citation (APA):** Doukas, H., Nikas, A., & Gambhir, A. (2020). Convergence between technological progress and sustainability is not that obvious. The Parliament Magazine. <https://www.theparliamentmagazine.eu/news/article/convergence-between-technological-progress-and-sustainability-is-not-that-obvious>



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Convergence between technological progress and sustainability is not that obvious

The coronavirus pandemic, like climate change, teaches us about the importance of mitigating risk to ensure our future prosperity. Should we place all our hopes on technology to deliver this safer future?



Photo credit: Pixabay



By Assoc. Prof. Haris Doukas, Dr. Alexandros Nikas and Dr. Ajay Gambhir

06 May 2020

In 1865, economist William Stanley Jevons observed that technological advancements in coal burning failed to cut coal consumption, instead leading to a sharp increase. This observation, known in environmental economics as the Jevons paradox, was attributed to increased efficiency in resource use leading to cheaper goods, thereby boosting demand.

Three decades ago, Nobel Laureate Robert Solow made another important observation about technology's limits, this time in computer science: despite rapid progress in computing power, including economic sectors heavily investing in IT, overall productivity growth slowed down, owing to a significant lag before the new-found computing power was effectively integrated into economic activities.

Today, the world is pressingly faced with myriad technological challenges: the immediate focus is on developing a coronavirus vaccine, but in not too long we will be returning our attention to asking how modern technological advancements can deliver both climate action and sustainable economic development. So far, the results are mixed, to say the least.

Despite efforts to promote clean energy sources like solar and wind, the fossil fuel regime still retains a daunting 80 percent of final energy use globally. While energy efficiency is considered a top priority, over the last quarter century, energy use has instead grown (by over 50 percent) far quicker than population growth (35 percent).

Increasing Google services users tripled respective energy consumption during the past eight years; the annual footprint of cryptocurrency mining networks is now comparable to national economies; the majority of global bandwidth is consumed for video streaming, and so on.

Some of these services are readily available and freely accessible (e.g. YouTube); although such free access is socially beneficial and contributes to sustainability in various manners (e.g. by reducing inequalities), free-riding in highly energy-consuming lifestyles is not in keeping with the traditional climate policy model and required sustainability efforts.



"Despite efforts to promote clean energy sources like solar and wind, the fossil fuel regime still retains a daunting 80 percent% of final energy use globally"

Digitalisation is, in the scientific community and otherwise, widely considered an enabler of behavioural change that can help materialise a low-carbon, less material-intensive future. But there is a very real possibility that people will instead give in to a society-wide rebound effect, where more energy is needed to use a larger number of higher efficiency services.

Think of the future smart household with multiple video screens, virtual reality terminals and any new number of electronic consumer devices mandated

Figure 5: Preview of 'Convergence between technological progress and sustainability is not that obvious' in The Parliament Magazine



2.6 Anger-Kraavi (2020), Estonian World

- Title:** Positive and negative effects of the coronavirus pandemic on climate change
- Authors:** Annela Anger-Kraavi (Cambridge)
- Medium:** Estonian World
- Abstract:** Annela Anger-Kraavi, a senior researcher in climate change policy and economics at the University of Cambridge, highlights three positive and three negative effects of the coronavirus pandemic on climate change.
- Keywords:** Coronavirus; Climate Change
- Link:** <https://estonianworld.com/opinion/annela-anger-kraavi-positive-and-negative-effects-of-the-coronavirus-pandemic-on-climate-change/>
- First Online:** May 9, 2020
- Citation (APA):** Anger-Kraavi, A. (2020). Positive and negative effects of the coronavirus pandemic on climate change. Estonian World. <https://estonianworld.com/opinion/annela-anger-kraavi-positive-and-negative-effects-of-the-coronavirus-pandemic-on-climate-change/>





Annela Anger-Kraavi: Positive and negative effects of the coronavirus pandemic on climate change

By Annela Anger-Kraavi / May 9, 2020 / 0 Comments / Opinion

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Annela Anger-Kraavi, a senior researcher in climate change policy and economics at the University of Cambridge, highlights three positive and three negative effects of the coronavirus pandemic on climate change.

The crisis we are currently facing will not solve the climate crisis by itself. Even if we stopped adding greenhouse gasses to the atmosphere right now, the changes that have already begun will still cause a 1.5°C (2.7°F) manmade temperature increase by the end of this century.

During the current coronavirus crisis, emission levels have not fallen to zero. According to available data, it is thought that the amount of carbon dioxide released into the atmosphere in China decreased by as much as 25% in February. However, the economy there has now begun to recover, and emissions have again increased significantly.

The International Energy Agency predicts that the amount of CO2 emissions could fall by about 5% this year. If we want to limit human-induced global warming to 1.5°C – as we as mankind have promised ourselves – then we must cut yearly emissions by 50% by 2030.

Therefore, to limit climate change, we need to actively reduce greenhouse gasses in every area of our lives, develop new carbon free technologies and change our own behaviour. The coronavirus pandemic will not provide a magical solution to the climate crisis, we must act ourselves.

What are the positive effects of the pandemic on the climate crisis?

There has been a partial decrease in the use of transport and electricity. In some cases, the amount of traffic has more than halved from its level prior to the crisis. As fewer fossil fuels are being burned, the air pollution levels in many places have

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Figure 6: Preview of 'Positive and negative effects of the coronavirus pandemic on climate change' in Estonian World



2.7 Doukas et al. (2020), New Europe

- Title:** Green glimmers of hope in climate action through a European, citizen-led transition model
- Authors:** Haris Doukas (NTUA), Alexandros Nikas (NTUA), and Ioannis Tsipouridis (NTUA)
- Medium:** New Europe
- Abstract:** There is no space for “one crisis at a time”. And evidence suggests that behavioural changes have been instrumental in reducing the spread of COVID-19. The climate crisis is no different.
- Keywords:** Climate Change; Greenhouse gas emissions
- Link:** <https://www.neweurope.eu/article/green-glimmers-of-hope-in-climate-action-through-a-european-citizen-led-transition-model/>
- First Online:** August 27, 2020
- Citation (APA):** Doukas, H., Nikas, A., & Tsipouridis, I. (2020). Green glimmers of hope in climate action through a European, citizen-led transition model. New Europe. <https://www.neweurope.eu/article/green-glimmers-of-hope-in-climate-action-through-a-european-citizen-led-transition-model/>



PUBLISHED 08:05 AUGUST 27, 2020

UPDATED 08:05 AUGUST 27, 2020

Green glimmers of hope in climate action through a European, citizen-led transition model



By Dr Haris Doukas

Associate Professor of energy and climate policy at the School of Electrical and Computer Engineering, National Technical University of Athens



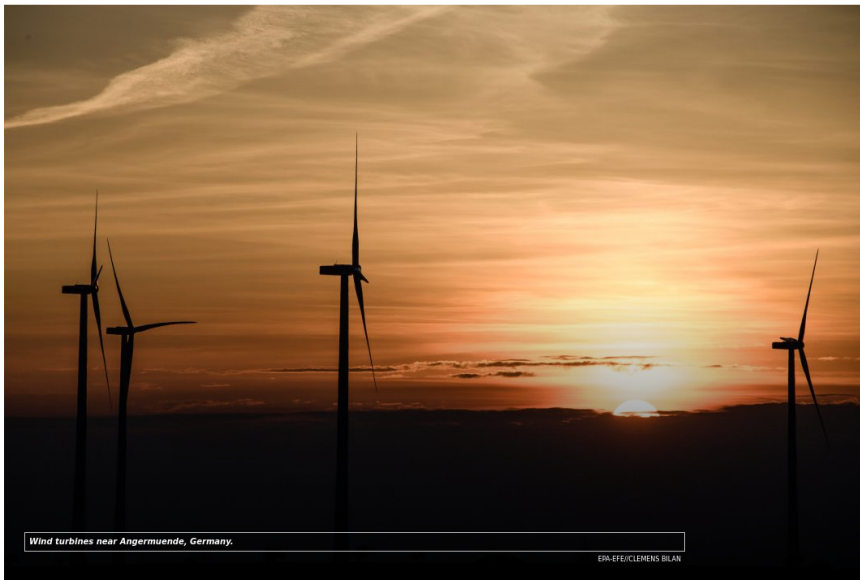
By Dr. Alexandros Nikas

Senior Climate Expert at the National Technical University of Athens



By Dr. Ioannis Tsiouridis

Renewables Consultant Engineer, Visiting Professor to the Technical University of Mombasa and Editor of e-mc2.gr Climate Gamp; Energy portal.



Wind turbines near Angermünde, Germany.

May 2020 **OUR WORLD** Struck by the Pandemic

There is no space for "one crisis at a time". And evidence suggests that behavioural changes have been instrumental in reducing the spread of COVID-19. The climate crisis is no different.

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The changes we have been witnessing in the climate system for decades, now rapidly culminating to a climate breakdown, constitute only one of a series of overlapping environmental crises. Extinction of species, deterioration of oceans, the proliferation of plastics, water scarcity and now pandemics, among others, clearly lead to a single conclusion: the planet has long left its comfort zone.

The emblematic IPCC 1.5°C Special Report spelt out that about a decade and (now less than) half a degree Celsius stand between us and a milestone temperature rise impacting nature and humans alike. The latest UN Environment Programme (UNEP) Emissions Gap Report indicated that global emissions need to be cut by 7.6% per year, starting now, to limit global warming to 1.5°C. This means a reduction target of at least 68% by 2030.

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Figure 7: Preview of 'Green glimmers of hope in climate action through a European, citizen-led transition model' in New Europe



2.8 Doukas et al. (2020), Africa Sustainability Matters

- Title:** How best to achieve a desirable transition to a low-carbon economy: the case of Sub-Saharan Africa.
- Authors:** Haris Doukas (NTUA), Alexandros Nikas (NTUA), Michael Saulo and Ioannis Tsipouridis (NTUA)
- Medium:** Africa Sustainability Matters
- Abstract:** As there is no “one model fits all” approach, scientists need to employ a diversity of modelling tools, placing the human factor at the core of all scientific processes, towards enhancing the robustness of model-driven policy prescriptions through participatory frameworks.
- Keywords:** Climate Change; Co-creation; Stakeholders; Kenya; Sub-Saharan Africa
- Link:** <https://africasustainabilitymatters.com/how-best-to-achieve-a-desirable-transition-to-a-low-carbon-economy-the-case-of-sub-saharan-africa/>
- First Online:** October 24, 2020
- Citation (APA):** Doukas, H., Nikas, A., Saulo, M., & Tsipouridis, I. (2020). How best to achieve a desirable transition to a low-carbon economy: the case of Sub-Saharan Africa. Africa Sustainability Matters. October 24, 2020.





International News

How best to achieve a desirable transition to a low-carbon economy: the case of Sub-Saharan Africa.

By External Source - October 24, 2020



Scientific support to climate action is not only about exploring capacity of "what", but also about assessing desirability of "when", "where", and especially for "whom".

The changes we have been witnessing in the climate system for decades, now rapidly culminating to a climate breakdown, constitute only one of a series of overlapping environmental crises.

Indeed, 2020 has been an unprecedented year for people and the planet. The Covid-19 pandemic has disrupted lives and economies worldwide. At the same time, the heating of our planet and climate disruption have continued apace. It has never been clearer that we need long-term, inclusive, decisive transitions to tackle the climate crisis and achieve sustainable development.

Climate action and sustainability commitments must, therefore, be at the forefront of recovery and reconstruction policy, and of the corresponding budgets, for the "Build Back Better" motto to have any substance.

In this direction, policy and business stakeholders alike are increasingly aware of the potential for behaviours and lifestyles to help or hinder the sustainability transitions, and of the need to understand them better before making respective investments. As such, scientific support to climate action should not only be about assessing the feasibility of low-carbon transition pathways in terms of exploring capacity of "what" (policies and technologies). It must also be about desirability, in terms of "when" (timings), "where" (contexts) and especially for "whom" (citizens and other stakeholders). Without the necessary behavioural and societal transformations, the

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Vlogger Giving A Voice To Green Enterprises

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How best to achieve a desirable transition to a low-carbon economy: the case of Sub-Saharan Africa.

TUM, Paris Reinforce Organize Virtual Workshop

Figure 8: Preview of 'How best to achieve a desirable transition to a low-carbon economy: the case of Sub-Saharan Africa.' in Africa Sustainability Matters



3 Newsletters

To help spread the word about PARIS REINFORCE and its potential, our team is releasing regular newsletters. Below, we list all newsletters by date, along with the headlines of content included in each of them.

3.1 July 2019

| | |
|-----------------|---|
| Title: | PARIS REINFORCE News: July 2019 |
| Content: | PARIS REINFORCE Kick-off Meeting |
| Link: | https://preview.mailerlite.com/n0v4p6/ |

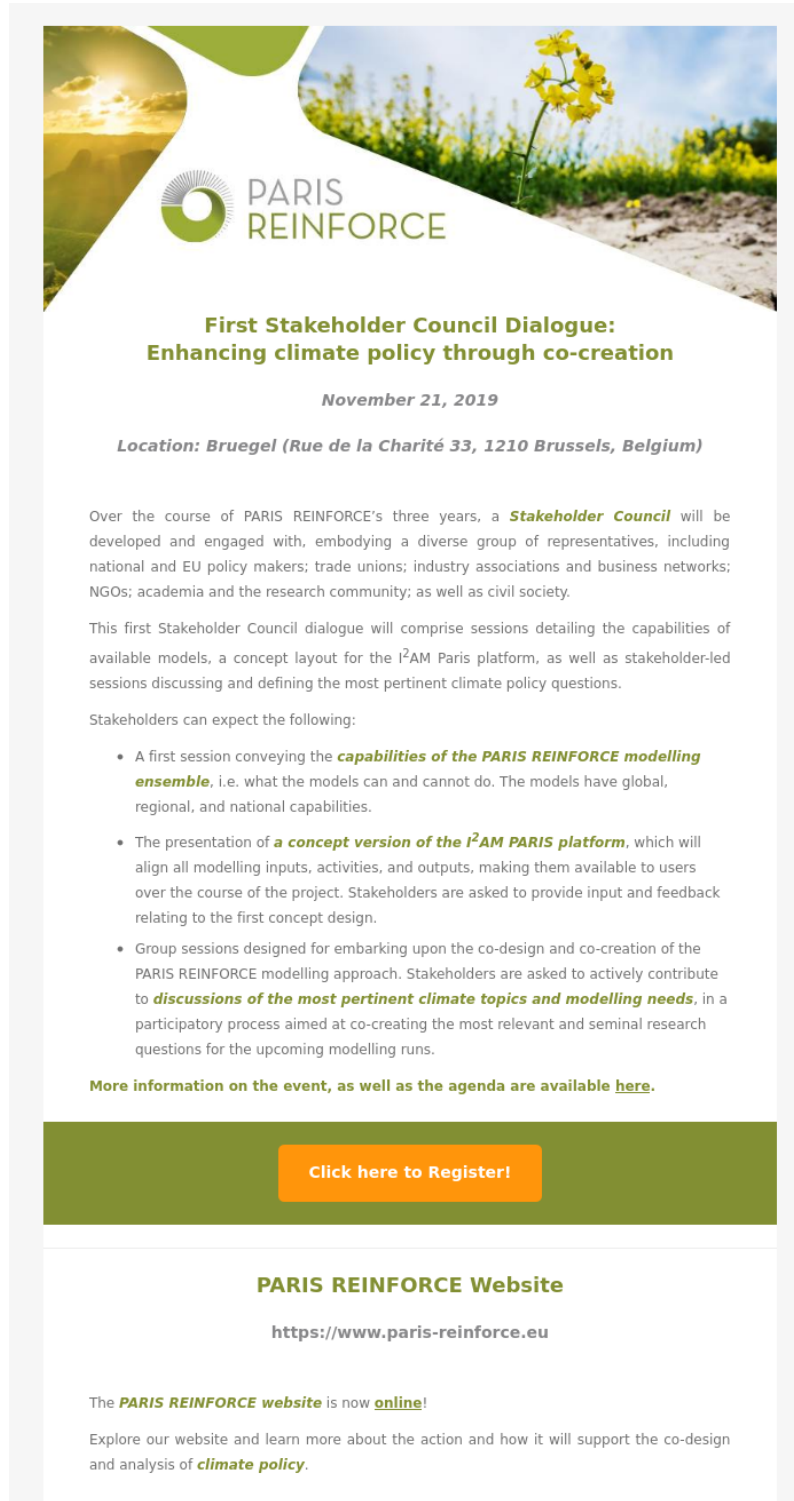


Figure 9: Preview of July 2019 Newsletter



3.2 October 2019

Title: PARIS REINFORCE News: October 2019
Content: First Stakeholder Council Dialogue
Link: <https://preview.mailerlite.com/y2d5g0>



The image shows a preview of a newsletter for PARIS REINFORCE. The header features the PARIS REINFORCE logo and a background image of a field of yellow flowers under a sunset sky. The main title is "First Stakeholder Council Dialogue: Enhancing climate policy through co-creation" dated November 21, 2019, in Brussels, Belgium. The text describes the development of a Stakeholder Council and the details of the first dialogue session. A list of three bullet points outlines the session's agenda, including a presentation of the i²AM PARIS platform and group sessions for co-designing the modelling approach. A registration button is provided at the bottom of the newsletter preview.

PARIS REINFORCE

**First Stakeholder Council Dialogue:
Enhancing climate policy through co-creation**

November 21, 2019

Location: Bruegel (Rue de la Charité 33, 1210 Brussels, Belgium)

Over the course of PARIS REINFORCE's three years, a **Stakeholder Council** will be developed and engaged with, embodying a diverse group of representatives, including national and EU policy makers; trade unions; industry associations and business networks; NGOs; academia and the research community; as well as civil society.

This first Stakeholder Council dialogue will comprise sessions detailing the capabilities of available models, a concept layout for the i²AM Paris platform, as well as stakeholder-led sessions discussing and defining the most pertinent climate policy questions.

Stakeholders can expect the following:

- A first session conveying the **capabilities of the PARIS REINFORCE modelling ensemble**, i.e. what the models can and cannot do. The models have global, regional, and national capabilities.
- The presentation of **a concept version of the i²AM PARIS platform**, which will align all modelling inputs, activities, and outputs, making them available to users over the course of the project. Stakeholders are asked to provide input and feedback relating to the first concept design.
- Group sessions designed for embarking upon the co-design and co-creation of the PARIS REINFORCE modelling approach. Stakeholders are asked to actively contribute to **discussions of the most pertinent climate topics and modelling needs**, in a participatory process aimed at co-creating the most relevant and seminal research questions for the upcoming modelling runs.

More information on the event, as well as the agenda are available [here](#).

Click here to Register!

PARIS REINFORCE Website

<https://www.paris-reinforce.eu>

The **PARIS REINFORCE website** is now **online!**

Explore our website and learn more about the action and how it will support the co-design and analysis of **climate policy**.

Figure 10: Preview of October 2019 Newsletter



3.3 December 2019

Title: PARIS REINFORCE News: December 2019

Content: Outcomes of the First Stakeholder Council Dialogue

Link: <https://preview.mailerlite.com/c7h1g0/>

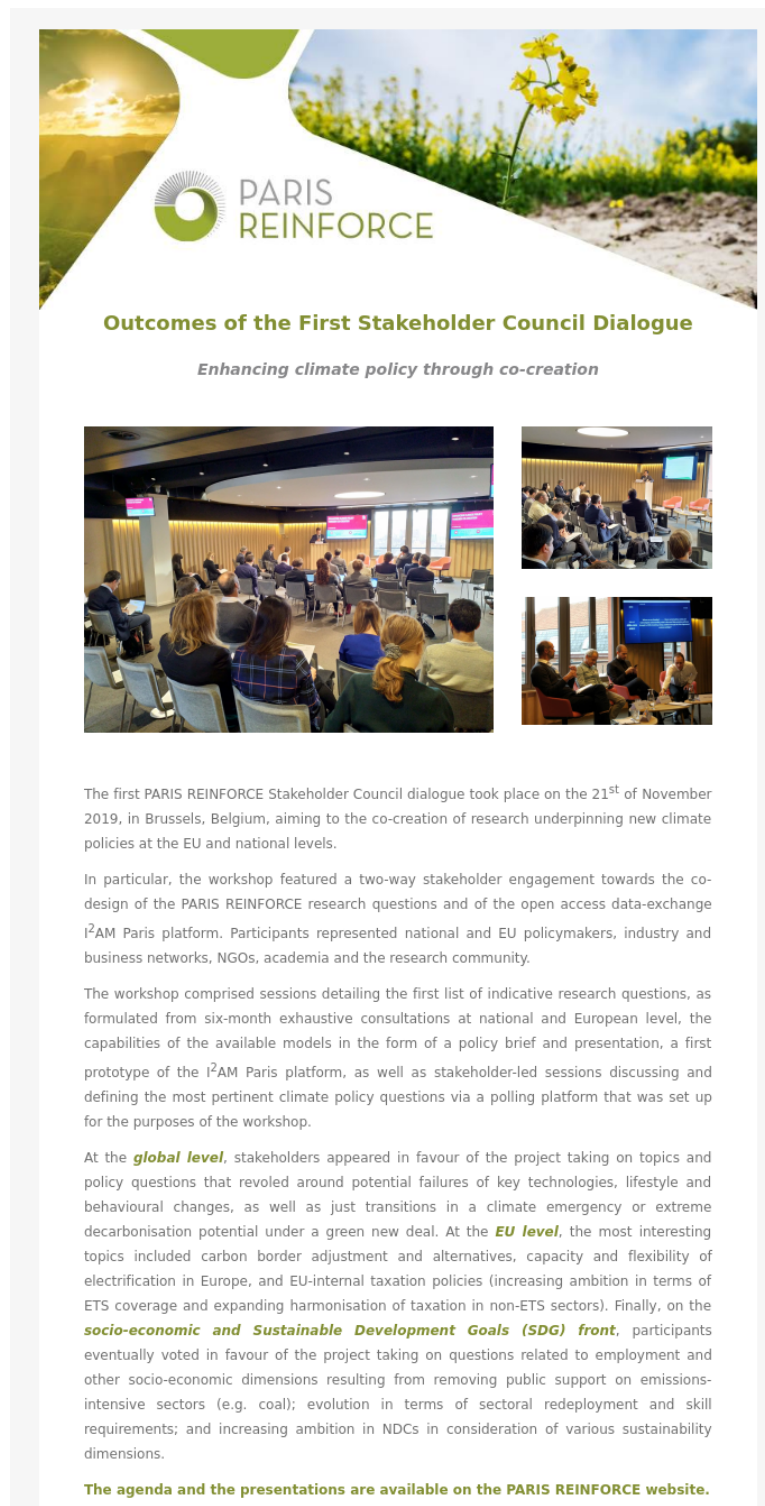


Figure 11: Preview of December 2019 Newsletter



3.4 April 2020

- Title:** PARIS REINFORCE News: April 2020
- Content:** PARIS REINFORCE in the time of COVID-19
PARIS REINFORCE National Stakeholder Workshops
PARIS REINFORCE Participation in Conferences
PARIS REINFORCE Deliverables
PARIS REINFORCE Scientific Publications
- Link:** <https://preview.mailerlite.com/a9f7k9/>



Figure 12: Preview of April 2020 Newsletter



3.5 July 2020

Title: PARIS REINFORCE News: July 2020

Content: Convergence between technological progress and sustainability is not that obvious
PARIS REINFORCE Videos
PARIS REINFORCE Commentaries
PARIS REINFORCE Scientific Publications

Link: <https://preview.mailerlite.com/d0q1d0>

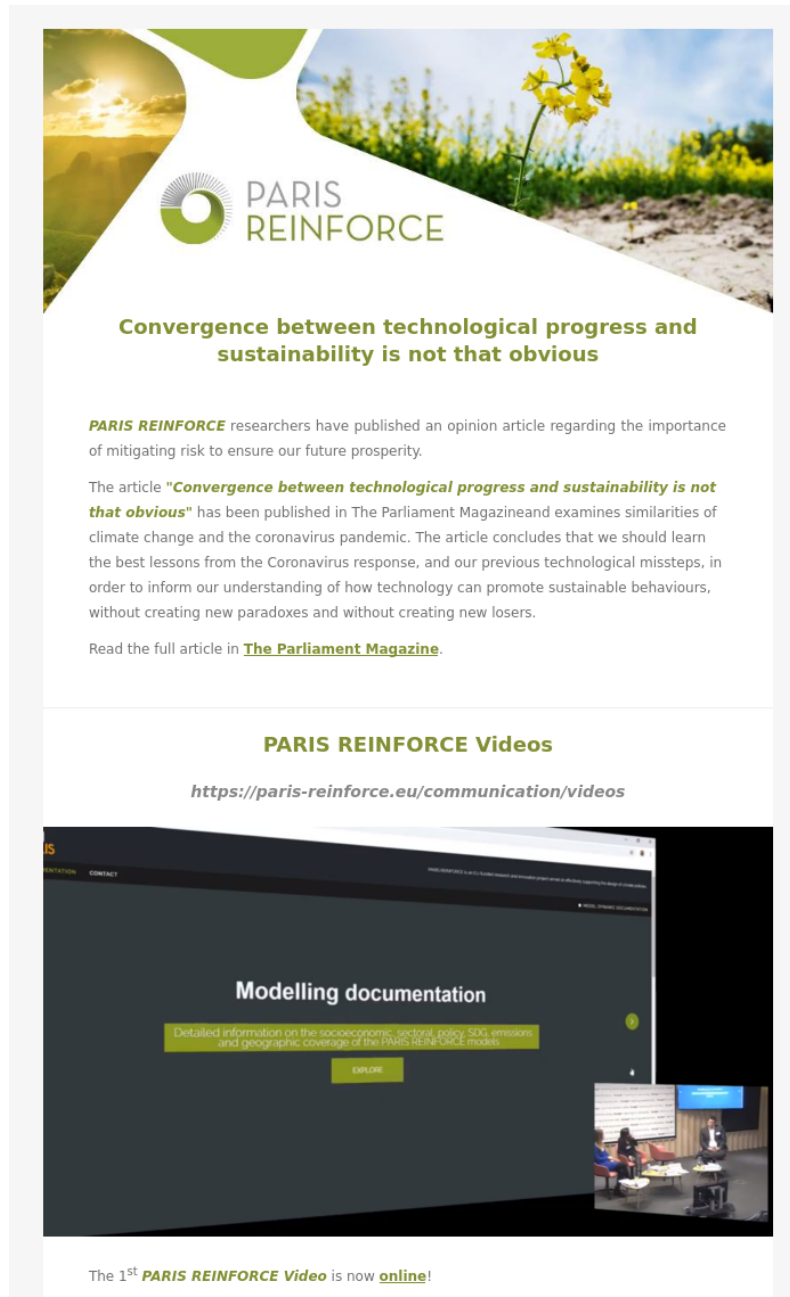


Figure 13: Preview of July 2020 Newsletter



3.6 September 2020

Title: PARIS REINFORCE News: September 2020

Content: Green glimmers of hope in climate action
Expanding the I2AM PARIS Platform
New PARIS REINFORCE Scientific Publications

Link: <https://preview.mailerlite.com/j8v712>

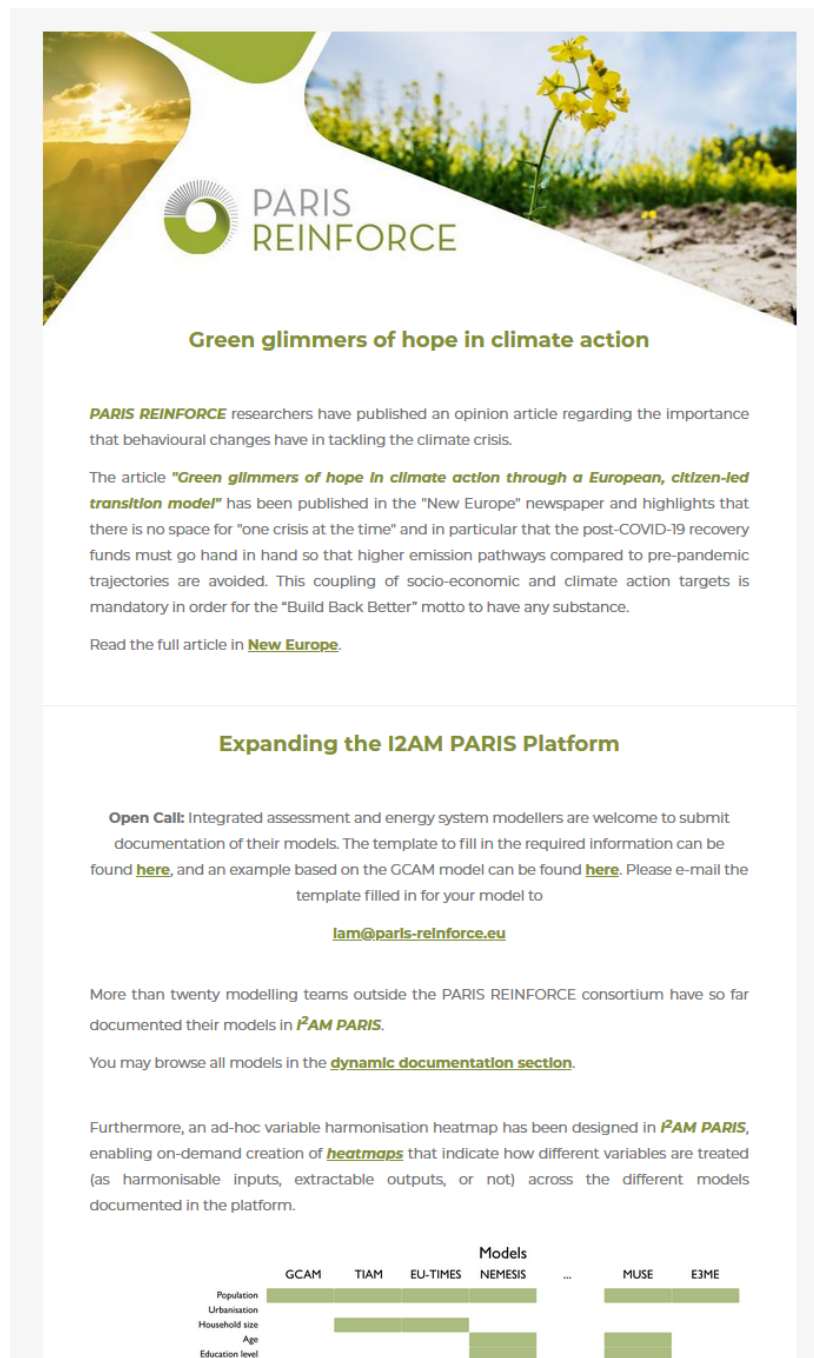


Figure 14: Preview of September 2020 Newsletter



3.7 October 2020

Title: PARIS REINFORCE News: October 2020

Content: Informed science for sustainable climate action in Kenya
What are current greenhouse gas mitigation scenarios commonly proposed for India?
New PARIS REINFORCE Scientific Publications

Link: <https://preview.mailerlite.com/t6s6c0>



Figure 15: Preview of October 2020 Newsletter



3.8 November 2020

Title: PARIS REINFORCE News: November 2020

Content: Co-creating India's mitigation pathways
 Perspective of comprehensive and comprehensible multi-model energy and climate science in Europe
 A series of infographics on how models represent climate, energy and economy

Link: <https://preview.mailerlite.com/z5e3r7>



Figure 16: Preview of November 2020 Newsletter



4 Press Releases

Three press releases were sent out to our newsletter subscribers to address significant updates, as of Nov 2020.

4.1 July 2020

Title: PARIS REINFORCE Press Release: July 2020

Content: PARIS REINFORCE Stakeholder Council

Link: <https://preview.mailerlite.com/l0w6z8/>



PARIS REINFORCE Stakeholder Council

<https://paris-reinforce.eu/action/stakeholder-council>

Responding to climate change requires transdisciplinary processes to come into play in order to put together a jigsaw of initiatives that altogether constitute effective national, regional and global **climate policies**. These policies must be science-based, technically feasible, financially viable, socially acceptable, and robust, as well as globally coordinated in a cooperative, Talanoa-spirit manner.

PARIS REINFORCE is an EU-funded research and innovation project aimed at effectively supporting the design of climate policies, in light of these requirements; it started in June 2019 and is expected to run until summer 2022.

In particular, the project aims to develop a novel, demand-driven, **integrated assessment model-oriented** framework for effectively supporting the design and analysis of climate policies in the European Union as well as in other major emitters and selected less emitting countries, in respect to the **Paris Agreement** and associated challenges.

By engaging policymakers and scientists/modellers, in an innovative way, PARIS REINFORCE will create the open-access and transparent data exchange platform **I²AM PARIS**, in order to support the effective implementation of Nationally Determined Contributions (NDCs), the preparation of future action pledges, the development of 2050 decarbonisation strategies, and the reinforcement of the 2023 Global Stocktake.

Strong stakeholder engagement is very important for the implementation of PARIS REINFORCE. Specifically, stakeholders will drive all modelling and policy support processes of PARIS REINFORCE, by actively participating in all stages of the project. These include defining the policy questions, modelling needs and parameters as well as the specifications and requirements of the I²AM PARIS platform, of which they will be the end users. The **ongoing stakeholder dialogue** begins with the identification, analysis and selection of the project's key stakeholders, establishes the project's **Stakeholder Council**, and maintains an exhaustive and ongoing dialogue, in which relevant stakeholder groups are placed at the core of all scientific processes, in line with the Talanoa dialogue spirit.

We invite you to register in the PARIS REINFORCE Stakeholder Council [here](#).

Contact US [Email](#)

Send us an email for any questions or express interest in the PARIS REINFORCE research

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Figure 17: Preview of July 2020 Press Release



4.2 October 2020

Title: PARIS REINFORCE Press Release: October 2020

Content: Kicking off an online series of co-creative stakeholder workshops!
Informed science for sustainable climate action in Kenya

Link: <https://preview.mailerlite.com/j0b4k5>

Kicking off an online series of co-creative stakeholder workshops!

PARIS REINFORCE is getting ready to resume its national and regional stakeholder workshops, in the virtual domain.

Join our upcoming e-workshops in Kenya, India, the Central Asian/Caspian region, and the EU.

Informed science for sustainable climate action in Kenya

A PARIS REINFORCE e-workshop, aimed at capturing the Kenyan national context and stakeholders' perspective

DATE: 28th October 2020 | TIME: 11.00 – 14.00 (GMT+3)

Location: The virtual domain (link upon registration)

Online registrations [here](#)

PARIS REINFORCE NATIONAL STAKEHOLDER WORKSHOP

Informed science for sustainable climate action in Kenya

DATE
October 28, 2020

TIME
11.00 to 14.00 (GMT+3)

REGISTER NOW

In cooperation with the Technical University of Mombasa, Kenya
Co-organised with NETFUND

NETFUND

In collaboration with the Technical University of Mombasa, and acknowledging that priorities and concerns of policymakers, industries and citizens largely differ across different

Figure 18: Preview of October 2020 Press Release



4.3 November 2020

- Title:** PARIS REINFORCE Press Release: November 2020
- Content:** The first two series of PARIS REINFORCE infographics are out!
- Link:** <https://preview.mailerlite.com/s3x1b1/>



The first two series of PARIS REINFORCE infographics are out!

<https://paris-reinforce.eu/communication/infographics>

The H2020 project **PARIS REINFORCE** has just released its first two series of infographics, aimed at visualising in a user-friendly way key outputs of the project!

The **first series of six infographics** seeks to explain how different socioeconomic dimensions, policies, mitigation and adaptation technologies, greenhouse gas emissions and other pollutants, economic sectors, and Sustainable Development Goals are represented in climate-economy and energy system models. It also illustrates how the PARIS REINFORCE modelling ensemble covers each of these aspects!



Of course, the **i²AM PARIS** open access, data exchange platform already hosts a dynamic documentation for **all models of the PARIS REINFORCE consortium, plus non-consortium models of the integrated assessment modelling community**. To view how different socioeconomic dimensions, policies, mitigation and adaptation technologies, greenhouse gas emissions and other pollutants, economic sectors, and Sustainable Development Goals are represented in each model, please visit the **i²AM PARIS** platform dynamic documentation, [here](#).

The **second series of seven infographics** draws from the project's socio-technical analysis activities, and illustrates in system maps the decarbonisation potential of different sectors in different countries, inside and outside Europe, and based on different or combinations of Systems of Innovation frameworks.

The first infographic builds upon the Multi-level Perspective and further focuses on the

Figure 19: Preview of October 2020 Press Release



5 Policy Brief

During the first regional stakeholder workshop, held in Brussels, in November 2019, PARIS REINFORCE issued a policy brief on modelling capabilities, to share with the attendees and online participants before, during and after the workshop, in an effort to enhance understanding of modelling across non-expert audiences.

- Title:** PARIS REINFORCE: What can our models deliver?
- Authors:** Ben McWilliams (Bruegel), Georg Zachmann (Bruegel), Alevgul Sorman (BC3), Ester Galende (BC3), Ajay Gambhir (Grantham), Alexandros Nikas (NTUA), and Haris Doukas (NTUA)
- Abstract:** The fundamental aim of PARIS REINFORCE is to enhance and improve climate policymaking. In order to do this, the consortium has access to a range of sophisticated climate-economic scientific models. A key novelty of the project is its devotion to 'demand-driven' research. That is, the questions these models will provide insights into and the assumptions they will do this based upon are to be stakeholder-determined through an extensive and exhaustive process.
- Keywords:** Policy brief; Integrated assessment models (IAMs); Climate policy; Climate science; Co-creation; Policy questions
- Link:** <http://paris-reinforce.eu/sites/default/files/2019-11/PARIS%20REINFORCE%20Policy%20Brief%20What%20our%20models%20can%20do.pdf>
- Online:** November 2019





Policy Brief

PARIS REINFORCE: What can our models deliver?



Key Points

Detailed policy briefing on:

- **Benefits of modelling**
- **How do the models work?**
- **What can the models do?**
- **What can the models not do?**
- **What have the models done before?**

The PARIS REINFORCE modelling ensemble includes:

- **5 national/regional models for Europe;**
- **9 models covering major and less emitting countries and regions outside of Europe; and**
- **8 global models.**

Thematic area:

Climate Change; Climate Policy; Low-carbon Transitions; Climate-Economy Modelling

Keywords:

Policy brief; Integrated assessment models (IAMs); Climate policy; Climate science; Co-creation; Policy questions

Author(s):

Ben McWilliams, Georg Zachmann (Bruegel)
Alevgul Sorman, Ester Galende (BC3)
Ajay Gambhir (Imperial College)
Alexandros Nikas, Haris Doukas (NTUA)



The PARIS REINFORCE project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 820846.

Figure 20: Preview of 'PARIS REINFORCE: What can our models deliver?' Policy Brief



6 Presentations in policy events and stakeholder workshops

PARIS REINFORCE has attended or (co-)organised several policy events and stakeholder workshops; here we list all presentations in such events, aimed at policymakers and stakeholders.

6.1 Networking and knowledge sharing event, September 05, 2019



PARIS REINFORCE coordinator Assoc. Prof. Haris Doukas (National Technical University of Athens), Maurizio Gargiulo (E4SMA) and Ajay Gambhir (Grantham Institute, Imperial College) participated in the 'Networking and knowledge sharing event for decarbonisation projects' & 'Coordinators' Day 2019' in Brussels, Belgium, which took place on the 5th and the 6th of September 2019 respectively.

PARIS REINFORCE representatives had the opportunity to meet with participants from other decarbonisation projects and discuss potential synergies towards climate change mitigation and adaptation research. In particular, a poster ([link](#)) showcasing the PARIS REINFORCE objectives and approach was put on display, while Prof. Doukas also delivered a presentation ([link](#)) on the policy, research and societal implications and expectations of the project, including its innovative stakeholder engagement module and the open-access data exchange modelling platform, as well as on the respective policy-relevant workshops through which stakeholders will be invited and able to provide their knowledge and expertise.



6.2 C-Track 50 EU roundtable, September 17, 2019



Researchers from PARIS REINFORCE participated in the C-Track 50 EU roundtable, which took place on the 17th of September 2019, in Athens, Greece.

The EU roundtable's objective was to give the opportunity to national authorities and experts from the eleven C-Track 50 countries to exchange their experiences in their path to successful action plans. It included topics on EU climate and energy policy; data monitoring and sharing; potential decarbonisation scenarios for 2050; and challenges for carbon neutrality and the role of multi-level governance. It was attended by high-level stakeholders (i.e. representatives from the Greek Ministry for Environment and Energy, the Association of Spanish Agencies for Energy Management, the Unit for Sustainable Cohesion Policy for the Ministry of Innovation and Technology of Hungary, the Unit at the Department for Agriculture and Rural Development of the Marshal Office of the Wielkopolska Region, the German Society for International Cooperation (GIZ), the Romanian Energy Regulatory Authority, the North West Croatia regional energy agency REGEA, regional energy agency of Auvergne-Rhône-Alpes, etc.).

Assoc. Prof. Haris Doukas (National Technical University of Athens), participated in the roundtable, with the aim to represent PARIS REINFORCE and present the project's objectives, approach and expected results ([link](#)).

[C-Track 50 EU roundtable](#)



6.3 First PARIS REINFORCE Stakeholder Council Dialogue, Brussels, November 21, 2019



The 1st PARIS REINFORCE Stakeholder Council Dialogue workshop, entitled "Enhancing climate policy through co-creation", took place on the 21st of November 2019, at the premises of Bruegel, in Brussels, Belgium.

The workshop was a Pan-European initiative for the co-creation of research underpinning new climate policies at the EU and national levels, drawing from the results of six-month exhaustive consultations at national and European level, which followed innovative participatory processes, under the Talanoa Dialogue spirit also adopted in the recent UN Climate Change Conferences.

High level staff of the EC Directorates-General (DGs) for Energy, Climate, and Research, Ministries and climate-related governmental bodies from EU Member States, representatives of international organisations, scientists, and researchers representing relevant projects and initiatives attended the workshop.

During the morning sessions, and after opening remarks from Mr. Lukasz Kolinski (Head of Unit, DG ENER.A.4) as well as an introduction to the project by the Coordinator Dr. Haris Doukas (Assoc. Prof., National Technical University of Athens), a detailed policy brief on what the PARIS REINFORCE models can and cannot do was handed out, presented and discussed with stakeholders. Furthermore, the I²AM PARIS platform was thoroughly presented and discussed with the audience, with the session essentially showcasing the dynamic, detailed and comparative documentation component of the platform (to which the audience was provided access to) and leading to a large Q&A part, in which preferences over the content, design and directions for the modelling analyses visualisation



were gathered.

The afternoon consultation, broken down into three thematic sessions, resulted in the main policy questions to be further investigated by the ensemble of Integrated Assessment Models of PARIS REINFORCE, by participating stakeholders prioritising the topics they would like to discuss in detail with the consortium members and, after discussions, selecting the particular policy questions they would like PARIS REINFORCE to seek to address, via a polling and voting platform. The lists of suggested topics for each session were put together after discussions with high-level policymakers at the EU and European-national level as well as included one question (per session) that drew from recommendations from the public, in a crowdsourcing platform that was set up for the purposes of the workshop

At the global level, stakeholders appeared in favour of the project taking on topics and policy questions that revolved around potential failures of key technologies, lifestyle and behavioural changes, as well as just transitions in a climate emergency or extreme decarbonisation potential under a green new deal. At the EU level, the most interesting topics included carbon border adjustment and alternatives, capacity and flexibility of electrification in Europe, and EU-internal taxation policies (increasing ambition in terms of ETS coverage and expanding harmonisation of taxation in non-ETS sectors). Finally, on the socioeconomic and Sustainable Development Goals (SDG) front, participants eventually voted in favour of the project taking on questions related to employment and other socio-economic dimensions resulting from removing public support on emissions-intensive sectors (e.g. coal); evolution in terms of sectoral redeployment and skill requirements; and increasing ambition in NDCs in consideration of various sustainability dimensions.

This workshop was the first of a series of stakeholder events to be held over the next three years.

You may find the agenda [here](#), and download the presentations below.

[An introduction to PARIS REINFORCE](#)

[Can our models deliver what you need?](#)

[Co-designing the open-access, data-exchange I²AM PARIS platform](#)

[Global threat, global pathways: designing policy-relevant scenarios](#)

[A Paris-consistent Europe: aligning national \(NECPs\), regional \(EU NDC\) & global action](#)

[Sustainable climate action: socioeconomic implications, distributional effects & SDGs](#)

[Wrap-up & Next Steps](#)



6.4 EU-Japan Climate Change Policy Symposium, December 06, 2019



PARIS REINFORCE researchers, including Assoc. Prof. Haris Doukas and Dr. Alexandros Nikas (National Technical University of Athens), Dr. Sara Giarola (Grantham Institute, Imperial College), Maurizio Gargiulo (E4SMA) and Ben McWilliams (Bruegel), participated in the "[EU-Japan Climate Change Policy Symposium: Use of scenario analysis to form the long-term strategy under the Paris Agreement](#)", which took place on the 6th of December 2019, at the [Delegation of the European Union to Japan](#) in Tokyo, Japan.

The symposium was organised by the [Institute for Global Environmental Strategies \(IGES\)](#) (partner to PARIS REINFORCE) in the context of the International Climate Initiative (IKI), and specifically the "[Strategic Partnerships for the Implementation of the Paris Agreement \(SPIPA\)](#)" project. It hosted presentations by (and vivid discussions among the audience and) representatives from DG CLIMA and the JRC research centre, the PARIS REINFORCE consortium, local authorities (e.g. city of Yokohama), industry (e.g. HITACHI and Deloitte), and the National Institute for Environmental Studies.

In particular, Assoc. Prof. Haris Doukas actively participated in the discussions hosted in the session entitled "The process for the EU vision for decarbonization and the role of scenario and model analysis", by also presenting the scope of PARIS REINFORCE, and highlighting details of the I²AM PARIS platform and the co-creation component of the project ([link](#)).



6.5 Climate Change, Energy and the Greek Environment, January 28, 2020



As the European Union moves forward with formulating the [European Green Deal](#), including a 2050 decarbonisation target, related reviews, ambition increases and updates of the 2030 National energy and climate plans ([NECPs](#)) are under way in EU countries. Greece is no exception as it moves ahead with its design and implementation of corresponding policies and measures.

However, these policies must promote a “just transition” and be socially accepted in order to be effective and robust. Ideally, citizens should take part in the selection of these policies, by being informed and expressing their preferences on the available options.

The PARIS REINFORCE project, along with the [Hellenic Society for the Environment and Culture](#) and the [Convergences Greece Forum](#), co-organised a national stakeholder workshop on climate change, energy and the national context, aiming to explore the available alternatives, on Tuesday, January 28, 2020, while giving the opportunity to stakeholders from industry, government and the civil society to get informed, discuss, raise concerns and help decide the way forward.

The workshop included 3 sessions on “Business, Energy & Environment”, “Sustainable Energy Planning - Technologies and Policies” and “Geothermal Energy”, as well as a roundtable discussion on “Sustainable Energy Sources: Economy, Society, Environment and the case of Wind Turbines”. After the latter an online voting took place in order to gather the stakeholders' perceptions on which topics they consider the most important to be further explored by PARIS REINFORCE and which factors they believe are the most impactful (either positively or negatively) towards a wide-scale deployment of renewable energy sources and the implementation of the Greek National Energy and Climate Plan.

The workshop's agenda is available in english [here](#).

Find below the workshop's presentations and stay tuned on the online voting results by subscribing in our [newsletter](#).

Welcome - Introduction



The PARIS REINFORCE project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 820846.

[Costas Carras - Welcome speech](#)

[Haris Doukas - Welcome speech](#)

1st Keynote speech

[Christos Zerefos - Climate Change in Greece from ancient times to the future](#)

1st Session: Business, Energy & Environment

George Prokopiou

[Costantza Sbokou-Konstantakopoulos - Sustainable Tourism Development and Climate Change](#)

[Yannis Retsos - Tourism and climate change: adapting to the new era](#)

2nd Session: Sustainable Energy Planning - Technologies and Policies

[Alice Corovessi - Energy savings in buildings in the light of the EU Green Deal and the Clean Energy Package](#)

[Dimitris Zontanos - Project Hellinikon Sustainable Energy Planning, Technologies and Policies](#)

[Athanasios Stoumbos - The prospects of hydrogen as an energy carrier](#)

[Xenophon Verikios - Hydrogen production for economic growth and climate change slowdown](#)

[Alexandra Sdoukou - The Decade of Green Development](#)

[Lampros Kontogeorgos - The EU Green Deal](#)

2nd Keynote speech

[Alexandra Mitsotaki - The Convergences Greece Forum](#)

Kostas Synolakis

3rd Session: Geothermal Energy

[Michalis Fytikas - The geothermal potential of Greece](#)

[Kostas Papavassiliou - Geothermal potential in Macedonia and Thrace - Prospects and potential for exploitation](#)

[Konstantinos Mavros - Geothermal energy as a baseload energy](#)

[Giannis Paleokrassas - Geothermal energy: Known in the past, Unknown today](#)

Roundtable discussion "Sustainable Energy Sources: Economy, Society, Environment and the Case of Wind Turbines"

[Panayiotis Pafilis - Biodiversity and wind farms](#)

[Diletta Zeni - Wind power and the energy transition](#)

[Panayiotis Fokas - Pagoulatos - Degradation of the natural and cultural environment in the name of its protection? The problem of the placement of Wind Power Plants in protected, mountainous and island areas](#)

[Stephan Wrage - Skysails Power - Revolutionary Airborne Wind Energy System](#)

[Apostolis Kaltsis](#)

[Ioannis Georgizas - Sustainable Development and Local Communities](#)

Tim Salmon



Voting Session

[Alexandros Nikas - Voting](#)

The workshop's page in Greek is available [here](#).



6.6 Zero carbon emissions in the Greek energy system, February 20, 2020



Researchers from PARIS REINFORCE participated in the "Zero carbon emissions in the Greek energy system: realism, opportunity or utopia?" workshop which took place on the 20th of February 2020, in Athens, Greece.

The workshop aimed to enable the National Dialogue for the decarbonisation of the Greek energy system. It was organised by the [Institute for Environmental Research and Sustainable Development](#) of the National Observatory of Athens within the framework of the "South East Europe Energy Transition Dialogue" project. Participants had the opportunity to take part in a constructive dialogue and exchange opinions and expertise towards answering the following critical questions.

- Do the Greek National Energy and Climate Plan (NECP) and the Long-Term Strategy for 2050 constitute a coherent framework of decarbonisation actions?
- Is it possible for Greece to achieve zero Greenhouse Gas (GHG) emissions until 2050?
- What policies are required in order to achieve zero GHG emissions?

On behalf of PARIS REINFORCE, Assoc. Prof. Haris Doukas participated in the workshop, presented the project's objectives and methodology and the progress so far. More specifically, the "co-creation" approach that PARIS REINFORCE applies in the formulation of climate action policies and the role of the [Stakeholder Council](#) in the climate scenarios modelling were highlighted. Furthermore, the [I²AM PARIS platform](#) which will enable the interaction and collaboration among climate modelling experts and policymakers, as well as stakeholders from the general public, was showcased.

The workshop's agenda is available [here](#) (in Greek).

Moreover, below are the workshop's presentations (in Greek).



[Workshop's Goals - Dr. Elena Georgopoulou](#)

[Long-Term Energy Planning in Greece - Prof. Dimitris Lalas](#)

["Green" Scenario for the evolution of the energy system till 2050 - Dr. Sarafidis Ioannis](#)

[Energy efficiency and Long-Term Energy Planning - Dr. Mirasgentis Sevastianos](#)

[Green vs. Green: The Necessary Transcends - Prof. Haris Doukas](#)



6.7 The Value of Energy Management Practices in the Business Sector, October 15, 2020



INZEB
INSTITUTE OF ZERO ENERGY BUILDINGS

The Hellenic-Dutch
Association
of Commerce
and Industry

15.10.2020
THURSDAY

ONLINE EVENT
14.00 - 15.30

THE VALUE OF ENERGY MANAGEMENT PRACTICES
IN THE BUSINESS SECTOR

PARIS REINFORCE researchers participated in the “**The Value of Energy Management Practices in the Business Sector**” online event, organised by [INZEB](#) and [The Hellenic-Dutch Association of Commerce and Industry](#) (HeDA), which took place on the 15th of October 2020. The event presented the developments and benefits of an effective Energy Management System (EnMS) within organisational structures. Participants had the opportunity to discuss the importance of improving energy efficiency, which not only reduces capital expenditure but offers a number of additional benefits including reduced risk to energy compliance failures, improved facilities performances, increased competitiveness, and ROI.

On behalf of PARIS REINFORCE, the project coordinator, Assoc. Prof. Haris Doukas, participated in the event and presented “*Opportunities and Threats towards a Sustainable Transition of the Industrial Sector*”. The presentation discussed findings on industrial low-carbon transition potential in the iron and steel, cement and chemicals sectors, from the recent PARIS REINFORCE open access publication “[The UK and German Low-Carbon Industry Transitions from a Sectoral Innovation and System Failures Perspective](#)” in the scientific journal [Energies](#).

The event agenda is available [here](#).

The presentation can be found here:

[Opportunities and Threats towards a Sustainable Transition of the Industrial Sector](#)



6.8 Informed science for sustainable climate action in Kenya, October 28, 2020

Zoom Meeting You are viewing Kathleen Kiruli's screen View Options

Alexandros ... Haris Doukas IOANNIS TSI... Ajay Gambhir Shaun Micallef (...)

PARIS REINFORCE IS FIRST ASKING: "WHERE ARE EMISSIONS HEADING?"



1 Implement current policies to 2030

2 Remove current Policies, reproduce 2030 emissions using carbon price

3 Extend emissions beyond 2030

Unmute Stop Video Participants 41 Chat Share Screen Record Reactions Leave

A PARIS REINFORCE e-workshop, aimed at capturing the Kenyan national context and stakeholders' perspective

October 28, 2020

Location: Online

Responding to climate change requires transdisciplinary processes to work together in order to co-design robust national, regional, and global climate policies. Such policies must be science-based, technically feasible, financially viable, socially acceptable, and coordinated in a globally cooperative manner.

In an attempt to develop such policies, PARIS REINFORCE, an EU research and innovation project, aims to bridge the gap in the science-policy interface and underpin climate policymaking with authoritative scientific processes. Apart from calling upon its diverse modelling capabilities, the project introduces an innovative co-creation framework, through which it seeks to actively involve stakeholders in multiple aspects of the scientific processes, from the formulation of relevant policy questions to the definition of modelling assumptions.

In collaboration with the Technical University of Mombasa, and acknowledging that priorities and concerns of policymakers, industries and citizens largely differ across different countries in the world and across stakeholder groups, the project organised its first virtual, national stakeholder workshop in Mombasa, Kenya, aiming to mobilise knowledge embedded in individuals coming from governments, business, NGOs, academia, and the civil society; and to design well-informed and meaningful scientific activities in support of climate policymaking at the



national and regional level.

The workshop was chaired and coordinated by **Dr. Ioannis Tsipouridis** and **Prof. Michael Saulo** (*Technical University of Mombasa*) and comprised sessions detailing the capabilities of the PARIS REINFORCE models for Kenya and the broader region, presenting our findings on climate action and sustainable development in Eastern Africa, as well as defining with participants the most pertinent climate policy questions. The event included the following sessions (click on the session title to view the presentation):

- [Greeting speech](#) and event outline by **Dr. Ioannis Tsipouridis** (*Technical University of Mombasa*).
- [So, what is the PARIS REINFORCE project?](#) – A brief introduction to the project by the project coordinator, **Prof. Haris Doukas** (*National Technical University of Athens*).
- [The project's modelling ensemble and its use in informing Kenyan mitigation pathways](#) – The Horizon 2020 PARIS REINFORCE project brings together a wide range of integrated assessment and energy systems models to inform feasible and politically realistic mitigation pathways for a number of the world's major regions. The modelling ensemble includes representations of the world as a whole, the African continent, as well as some sub-continental African regions, and these regions' low-carbon transitions can be used to describe the opportunities and challenges for Kenya and the surrounding countries. This presentation, by **Dr. Ajay Gambhir** (*Imperial College London, Grantham Institute*), introduced the PARIS REINFORCE modelling suite, before discussing some emerging results of relevance to Kenya, Africa, and the globe.
- [Designing policies for achieving simultaneous progress in multiple SDGs: an integrated assessment modelling exercise for Eastern Africa](#) – Global climate modelling exercises often ignore regional and local realities. In the case of Eastern Africa, climate efforts will be inseparable from other major development challenges, such as reducing poverty and hunger, achieving universal access to clean energy, water and sanitation, reducing exposure to household pollutants, and more. On-ground knowledge is therefore of high value for calibrating integrated assessment models, in order to allow the design of realistic energy and climate policies that are beneficial on multiple scales. This presentation by **Dr. Dirk-Jan Van de Ven** (*Basque Centre for Climate Change*) showed the results of a recent study focusing on the effectiveness of residential energy policies for multiple SDGs and showcased modelling possibilities within the PARIS REINFORCE project.
- [Co-designing research questions and modelling parameters](#) – Polls designed for embarking upon the co-creation of the PARIS REINFORCE modelling approach for the country and the region, in terms of questions and modelling parameters. Stakeholders, facilitated by **Dr. Alexandros Nikas** (*National Technical University of Athens*), were asked to actively contribute to co-defining and communicate their preferences over the modelling approach, in a participatory process aimed at formulating the most relevant and seminal research questions as well as critical parameters for the upcoming modelling runs.
- [Low-emissions, resilient infrastructure: Paris and SDGs are inseparable](#) – A forum for discussing with the audience the topic of how to build the low-emissions, resilient infrastructure by 2050 of which 75% does not exist today also facing a USD 15 trillion global financing gap by 2040. The infrastructure challenge covers multiple Sustainable Development Goals (6, 7, 8, 9, and 11). Inherently linked with No 13 "Climate Action". This was chaired and coordinated by **Mr. Zsolt Lengyel** (*Institute for European Energy and Climate Policy*).
- [Interpreting the Paris Agreement](#) – The Paris Agreement is written in a way that allows for a broad range of interpretations. The many ways in which the Agreement can be interpreted can shape the



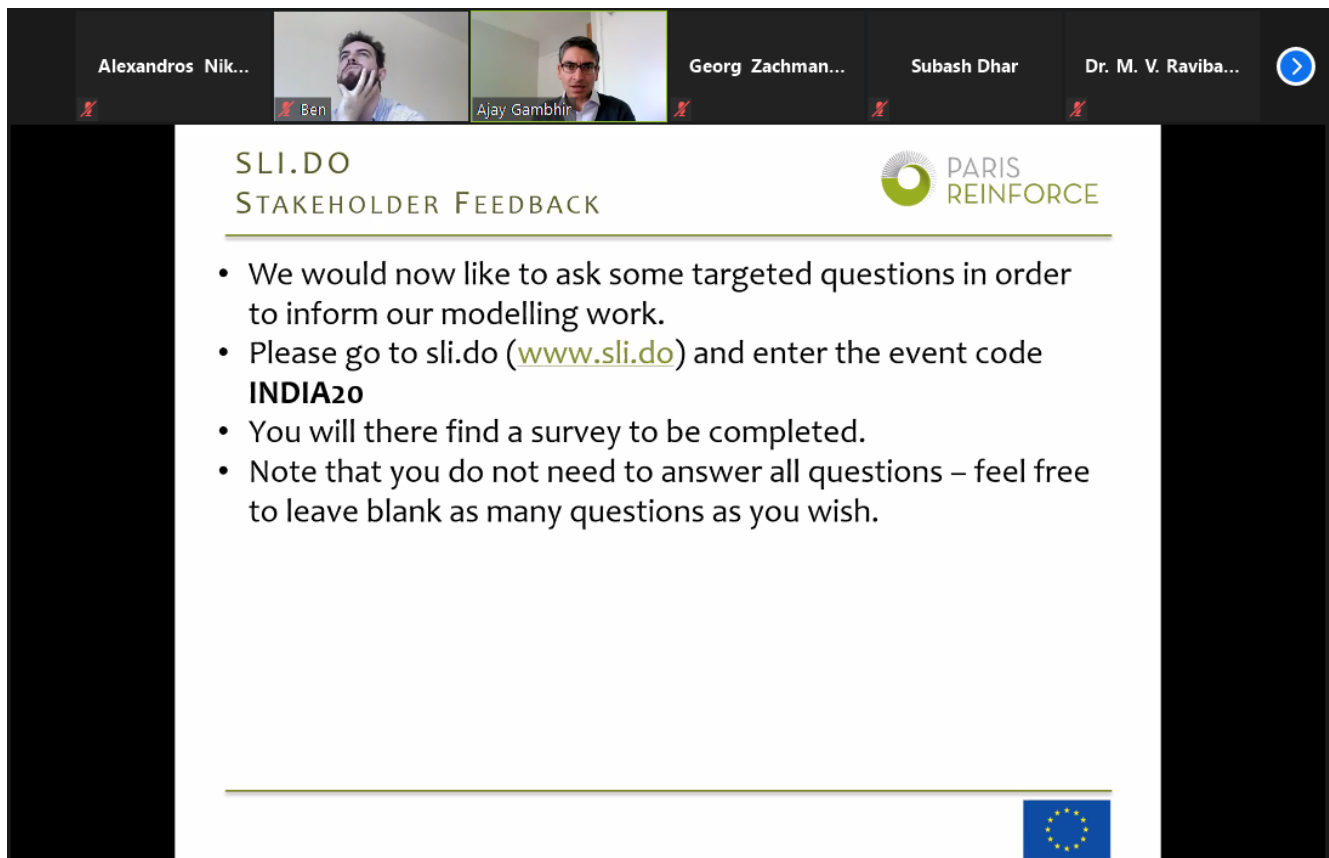
global/regional pathways and scenarios modelled within the PARIS REINFORCE project. In this session, stakeholders, facilitated by **Dr. Hannah Parris** (*Cambridge University*) explored the different interpretations of goals set out in the Paris Agreement text; for example, what is meant by the term "well below 2°C"? - with the aim of identifying the range of views. Stakeholders will be invited to anonymously share their views and identify core topics that will be explored further in the PARIS REINFORCE modelling scenarios.

Guidelines for dialogue and logistics

- The event took place under Chatham House Rule.
- Live polls through audience interaction tools ([Sli.do](#)).
- The event ran from 11:00 to 14:00 (GMT+3).



6.9 Co-creating India's mitigation pathways, November 3, 2020



The PARIS REINFORCE project hosted a **virtual workshop**, on November 3, 2020, to discuss the project's Indian modelling pathways. The format of the event was to hold structured **discussions on the Indian energy transition with experts** from NGOs, academia, the private sector, and government. This was with the purpose of allowing modelling teams to develop **stakeholder-driven modelling scenarios**, as well as to **co-create** some of the core assumptions being fed into models.

The workshop began with a brief introduction from project coordinator, **Prof. Haris Doukas** (*National Technical University of Athens*). Following this, **Dr. Ajay Gambhir** (*Grantham Institute, Imperial College London*) gave an overview on what modelling studies have so far revealed about low-carbon transitions in India. Additionally, he offered an insight into what the modelling work of the PARIS REINFORCE project has so far achieved as well as the next steps it will take.

After these introductory sessions, participants were split into three breakout groups to allow for more intimate discussions. The themes of the three breakout groups were the Indian power sector, the Indian transport sector, and the theme of urbanisation in India. Each session was structured around gathering participants' understanding of the key themes driving modelling results, i.e. are assumptions too ambitious, too pessimistic, or unrealistic/infeasible in other ways?

The **power sector** session was chaired by **Dr. Alexandre Koberle** (*Grantham Institute, Imperial College London*). Key themes investigated were:

- The political feasibility of early retirement of coal plants in India. Particularly focussed on the chances of retirement during the period 2020-2030.
- The target of 450GW renewable electricity capacity in India by 2030. Discussion centred around whether



this target is realistic and the key support mechanisms that must be put in place to support such rapid renewable electricity deployment.

The session on **urbanisation** was chaired by **Dr. Ajay Gambhir**. Key themes investigated were:

- The evolution of building cooling demand (e.g. demand for air conditioning). What are the implications of increased urbanisation and incomes for this demand?
- Smart cities and the potential benefits of better public transport infrastructure and more energy efficient buildings that could result from them.
- Key innovations or disruptive technologies that could influence the development of sustainable urban living in India.

The **transport sector** session was chaired by **Dr. Shivika Mittal** (*Grantham Institute, Imperial College London*). Key themes investigated were:

- Feasibility of the government's 30% electric vehicle share by 2030 target.
- Implications for the electricity grid of a surge in electric vehicles.
- The role for hydrogen in decarbonising India's transport sector.

Following the breakout groups, representatives from each session informed the larger group on the issues they had discussed in their respective groups, coordinated by **Dr. Georg Zachmann** (*Bruegel*). An interactive sli.do voting session, managed by **Mr. Ben McWilliams** (*Bruegel*), then allowed participants to give their feedback on all topics before closing remarks.

The key outputs from the discussion, as well as the opinions expressed via the sli.do voting session, will now be used to design realistic yet stretching scenarios of how India's low-carbon development could proceed in the coming decades.

Presentations:

[Haris Doukas - Introduction](#)

[Shivika Mittal, Alexandre Koberle, Ajay Gambhir - Overview & insights](#)



7 List of videos

One video has been published in the framework of the PARIS REINFORCE project, during the first 18 months.

7.1 Video 1: I²AM PARIS prototype

The video is a live demo of the I²AM PARIS prototype which was demonstrated during the first stakeholder dialogue in November 2019.

Title: I²AM PARIS prototype

Description: Live demo of the I²AM PARIS prototype, during our first stakeholder dialogue, Brussels, November 2019

Link: <https://www.youtube.com/watch?v=PJtwXEXuWHw>

Online: May 13, 2020



Figure 21: Preview of the video of the demonstration of the I²AM PARIS prototype



8 List of infographics

Below, we list all infographics published in the project, including two interactive ones in I²AM PARIS and two series of totally thirteen infographics on model coverage and socio-technical innovation system maps on the website.

8.1 Interactive infographic 1: Dynamic documentation of models

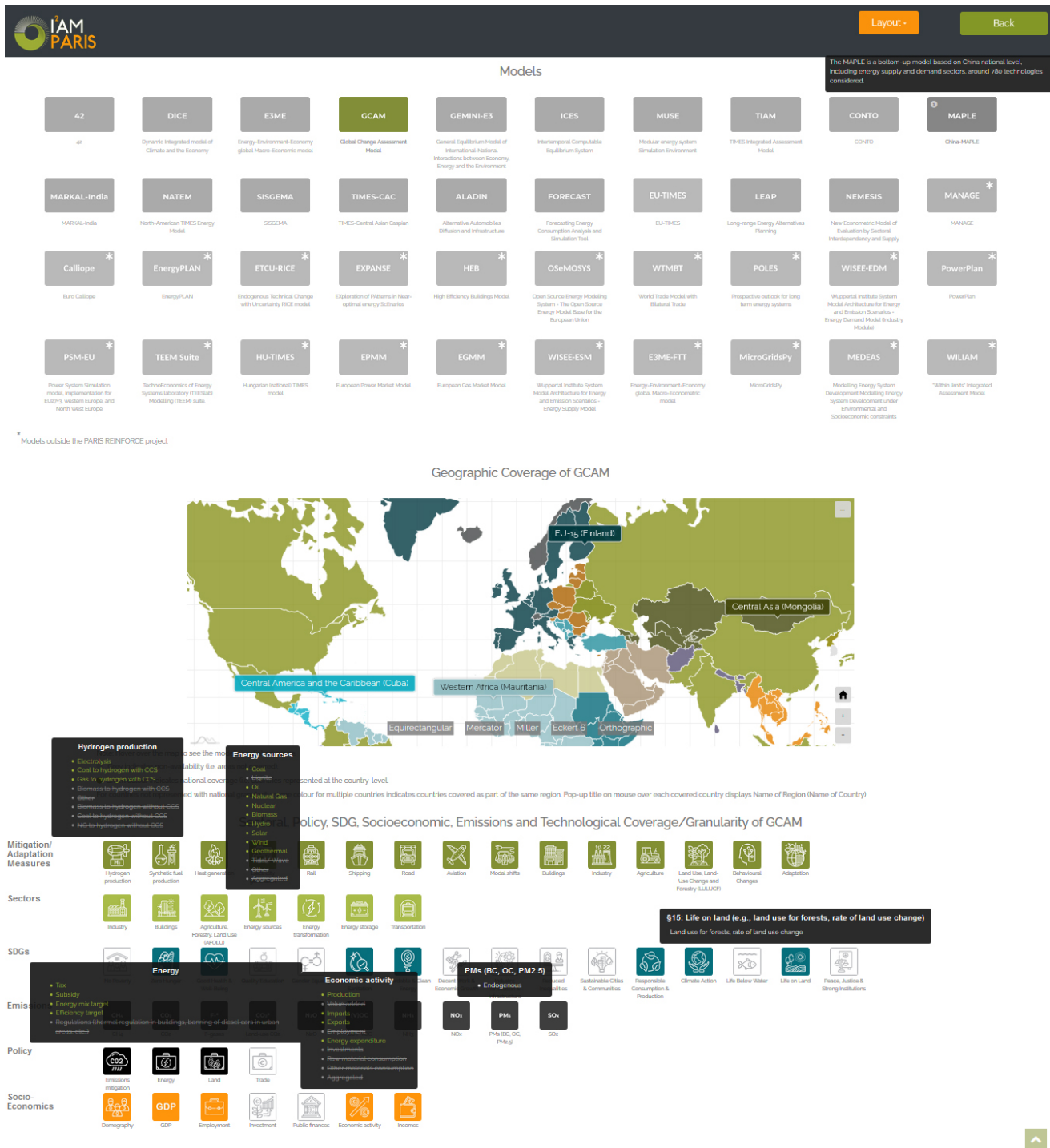


Figure 22: Interactive infographic 1 – dynamic documentation of each PARIS REINFORCE model



8.2 Interactive infographic 2: Customisable variable harmonisation heatmap

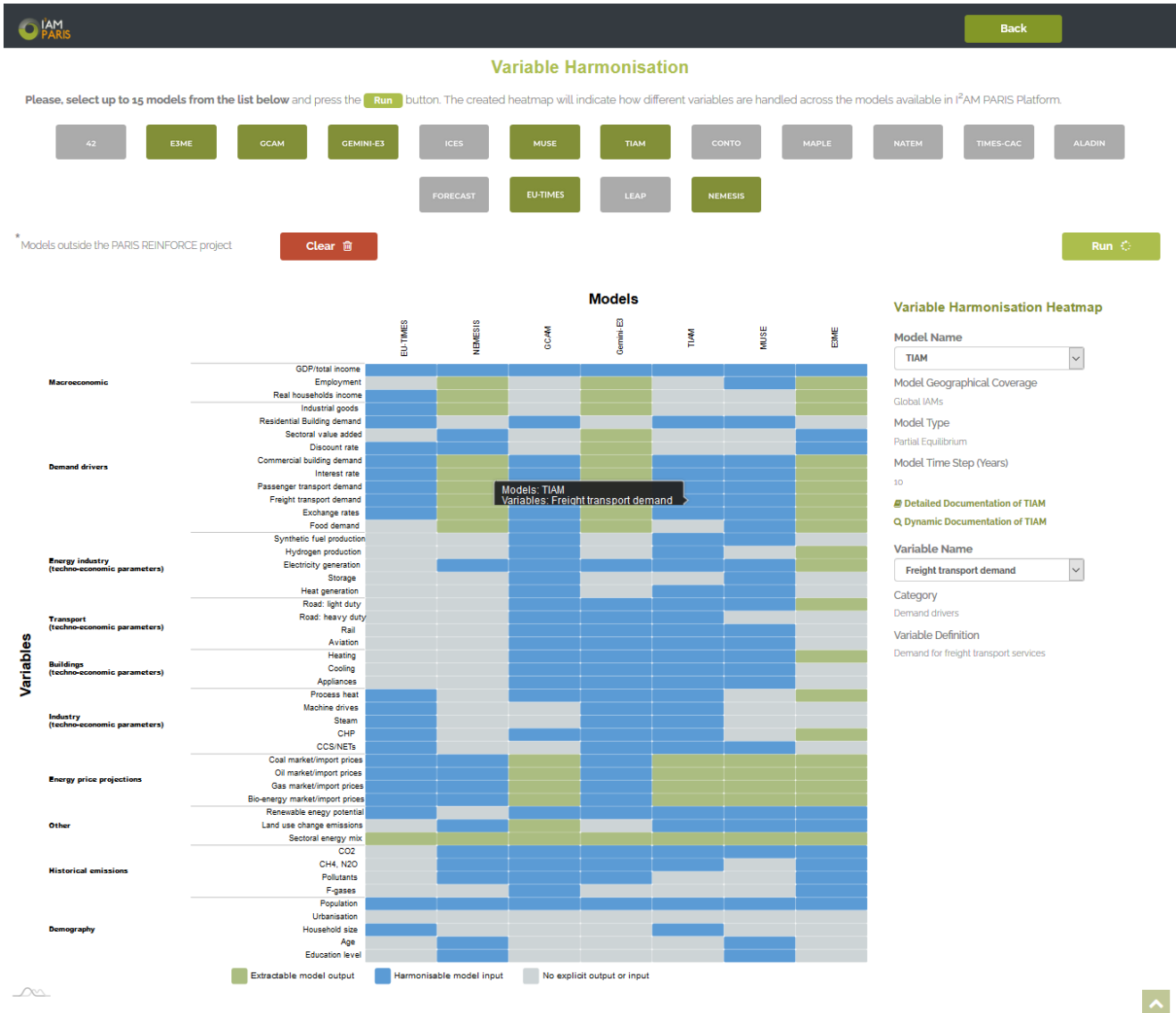


Figure 23: Interactive infographic 2 – Customisable variable harmonisation heatmap across all PARIS REINFORCE models

It should be noted that a workspace-specific, more detailed variable harmonisation heatmap is provided for all participating models in the results workspace of each model inter-comparison documented in I²AM PARIS.



8.3 Infographic 1: Representation of socioeconomic in PARIS REINFORCE models

This infographic, published in the PARIS REINFORCE website, explains in non-technical detail how socioeconomic variables are represented in climate-economy and energy quantitative system models, and illustrates in a user-friendly way how each socioeconomic variable is represented in the PARIS REINFORCE modelling suite.

Socioeconomic representation

Results computed by energy- and climate- economic models are driven by certain specific parameters, which are determined either endogenously (i.e. within a model's own calculations) or exogenously as an input from an external source. Most models share a common set of drivers, namely GDP and population, and this is why these two socioeconomic dimensions are largely considered in all PARIS REINFORCE models. Their projections are used to define the socioeconomic context to compare scenarios with and without climate policies. In all models, economic growth assumptions can be adjusted to reflect scenario input choices. Each model has a particular set of input requirements driving the sectoral changes. In most cases, as the underlying driver increases, energy demand also increases, but tends to do so at a slower rate, to reflect the fact that there is a decreasing demand for additional energy services as incomes rise; this is defined as the income elasticity of energy demand: when dropping down to zero, it is an indication of saturation levels for energy service demand being reached. The analysed models also incorporate the concept of energy price elasticity of energy demand, which captures the dynamics of rising energy prices leading to a fall in the demand for energy services. The combined impact of these two concepts can capture, to some extent, behaviour changes in terms of uptake of more efficient modes of travel, or the responsible use of appliances in buildings. However, more profound behaviour changes, such as large-scale shifts from private motorised transport to public transport or active transport (i.e. walking and cycling) are not directly captured in the project models, and scenarios assuming policies to implement and support such shifts can be implemented through exogenous input assumptions. As energy- and climate-economic models, the tools comprising the PARIS REINFORCE ensemble cover most socioeconomic dimensions like economic activities and incomes, while public finances and employment metrics to a lesser extent.

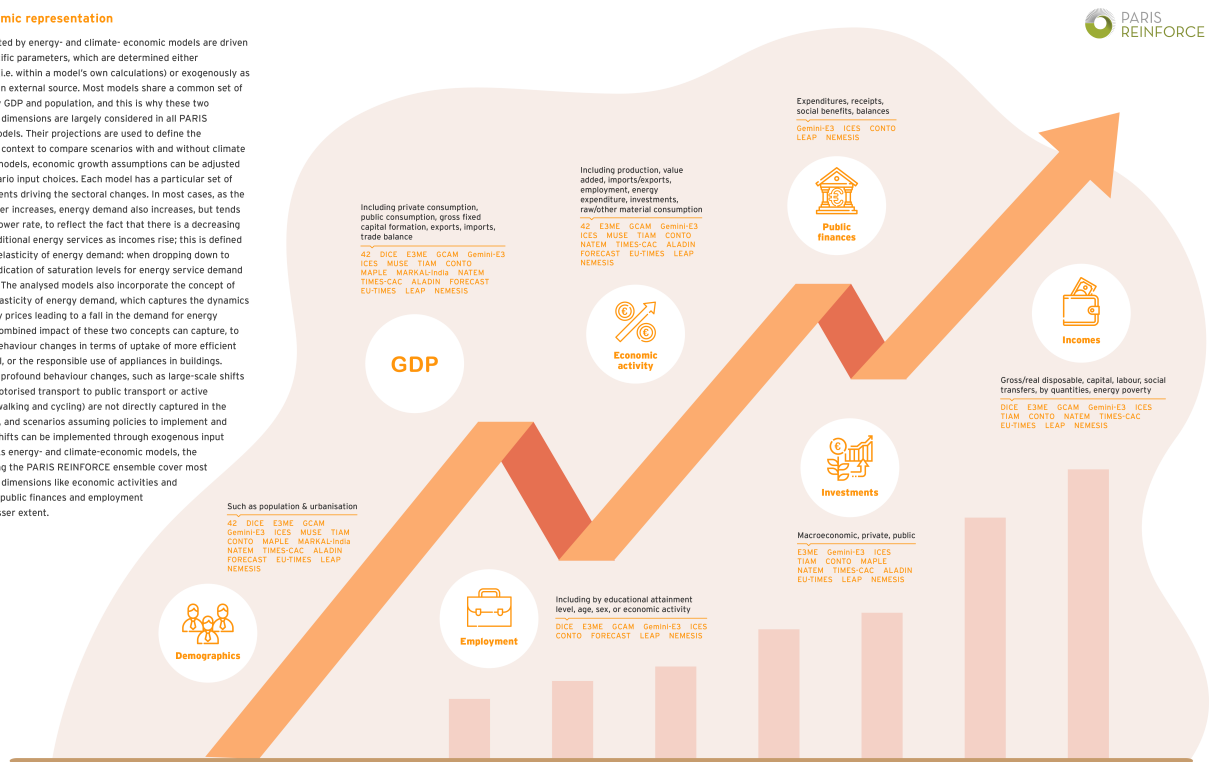


Figure 24: Infographic 1 – Socioeconomic representation in quantitative systems models and the PARIS REINFORCE modelling ensemble

8.4 Infographic 2: Representation of sectors in PARIS REINFORCE models

This infographic, published in the PARIS REINFORCE website, explains in non-technical detail how economic sectors are represented in climate-economy and energy quantitative system models, and illustrates in a user-friendly way to what extent each sector is represented in the PARIS REINFORCE modelling suite.

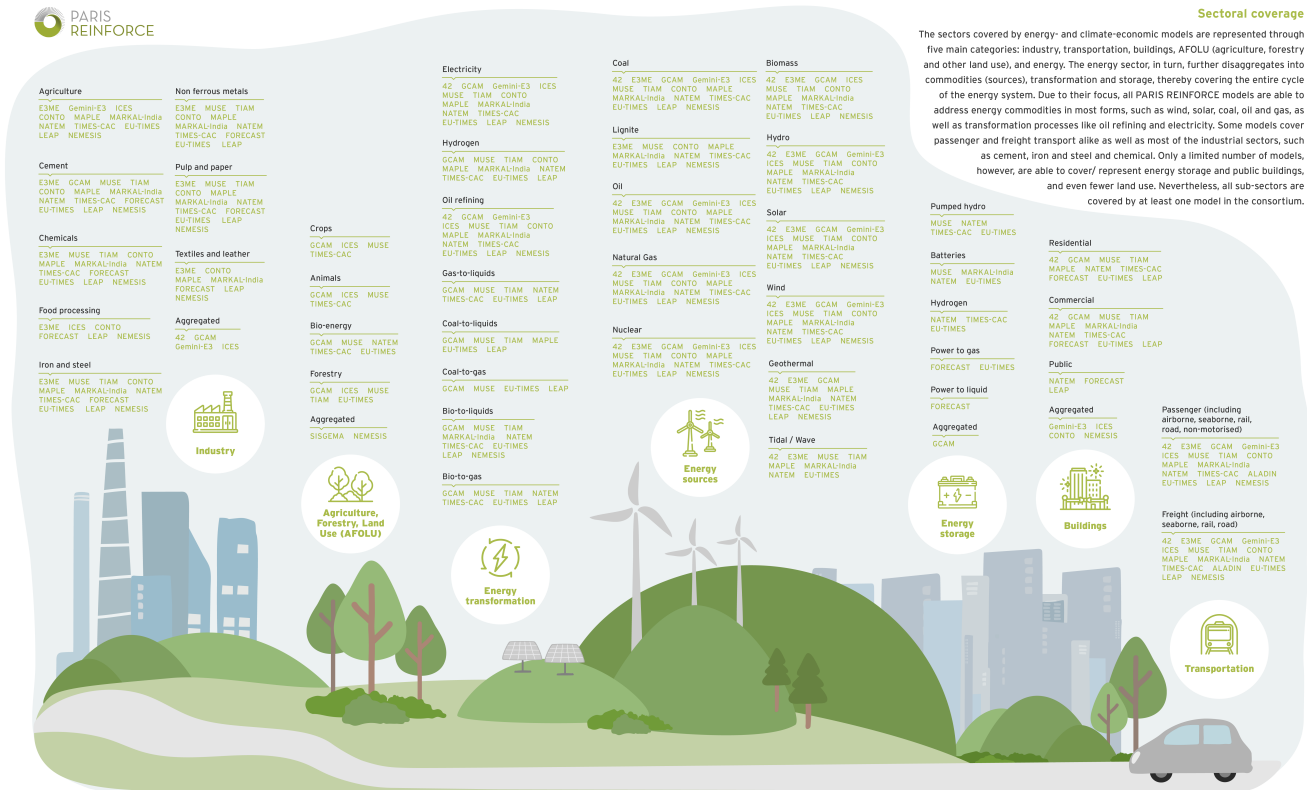


Figure 25: Infographic 2 – Sector representation in quantitative systems models and the PARIS REINFORCE modelling ensemble

8.5 Infographic 3: Representation of policies in PARIS REINFORCE models

This infographic, published in the PARIS REINFORCE website, explains in non-technical detail how different policy instruments are represented in climate-economy and energy quantitative system models, and illustrates in a user-friendly way to what extent each type of policy is represented in the PARIS REINFORCE modelling suite.

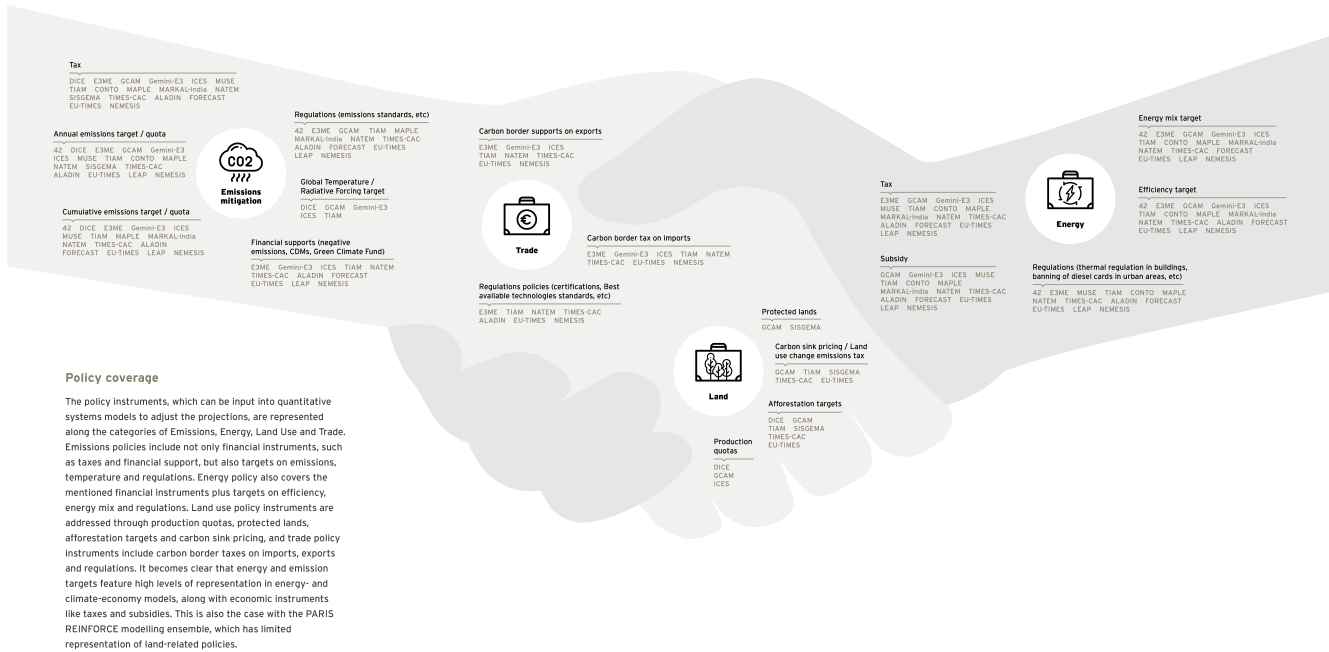


Figure 26: Infographic 3 – Policy representation in quantitative systems models and the PARIS REINFORCE modelling ensemble



8.6 Infographic 4: Representation of mitigation and adaptation measures in PARIS REINFORCE models

This infographic, published in the PARIS REINFORCE website, explains in non-technical detail how different mitigation and adaptation technologies are represented in climate-economy and energy quantitative system models, and illustrates in a user-friendly way to what extent each type of technological measure is represented in the PARIS REINFORCE modelling suite.

Mitigation and adaptation measures

Models produce outputs to inform mitigation and adaptation planning. Mitigation concerns measures that look to directly reduce emissions whereas adaptation considers measures that may be implemented in order to maintain established standards of living in a changing climate. Mitigation and adaptation measures can be included in all models' simulations of low-carbon pathways through, for example, the inclusion of renewable energy technologies as alternatives for fossil fuels (mitigation), a shift towards less land use-intensive diets (mitigation and adaptation), or increasing cooling requirements for buildings (adaptation). Models have historically focussed predominantly upon mitigation measures, and this is also the case with the PARIS REINFORCE modelling capabilities; however, adaptation capabilities are being steadily introduced in line with their increasing relevance given ongoing climate change. Mitigation measures can be applied into a range of sectors; one can investigate the effects of interventions into sectors in isolation or as part of a broad-ranging economy-wide strategy, like the European Green Deal. These can include clean technologies in upstream technologies (e.g. blue and green hydrogen production), heat and electricity generation (e.g. renewables) and storage, new transportation alternatives (e.g. hybrid or electric vehicles, biofuels, etc.), buildings technologies (e.g. new appliances and energy efficiency), industrial innovation, or new technologies in agriculture and land use (e.g. animal husbandry, integrated manure management, and reimbursements for holding carbon stocks). Specific adaptation measures can also be implemented for some sectors, particularly relating to the management of land use, water systems, and urban environments (e.g. consequences of afforestation levels on land-use change).

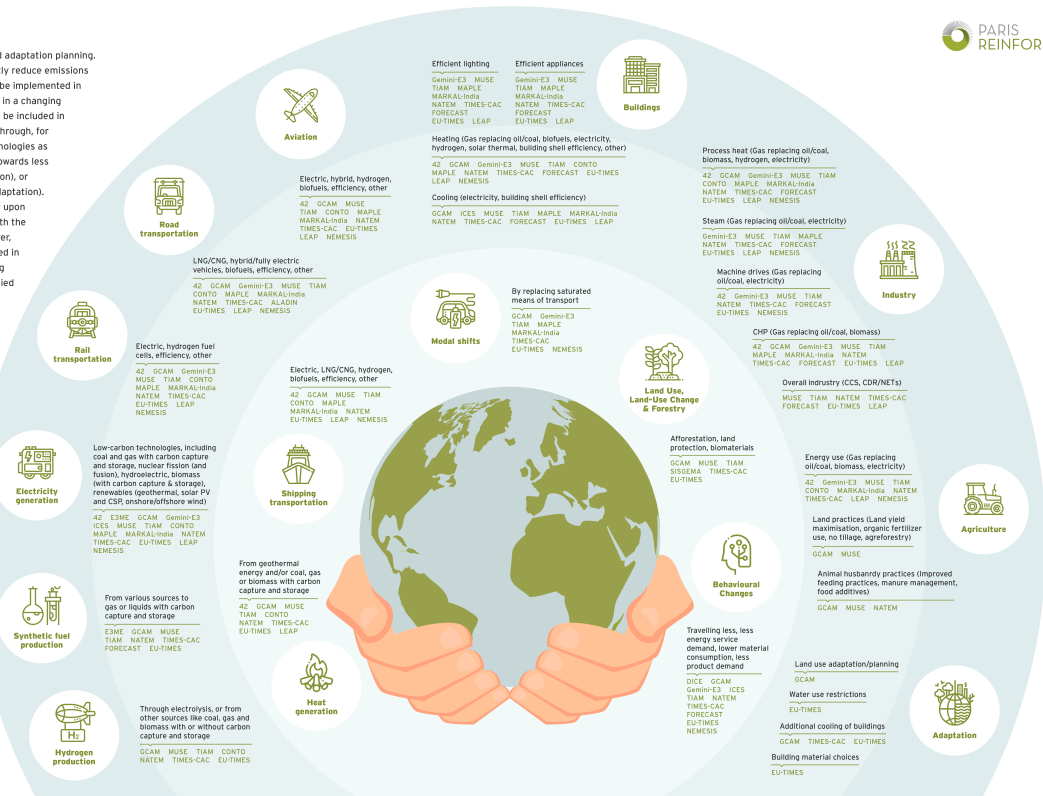


Figure 27: Infographic 4 – Mitigation and adaptation technological representation in quantitative systems models and the PARIS REINFORCE modelling ensemble

8.7 Infographic 5: Representation of emissions in PARIS REINFORCE models

This infographic, published in the PARIS REINFORCE website, explains in non-technical detail how Greenhouse Gas (GHG) emissions and other pollutants are covered in climate-economy and energy quantitative system models, and illustrates in a user-friendly way to what extent each emission is represented in the PARIS REINFORCE modelling suite.

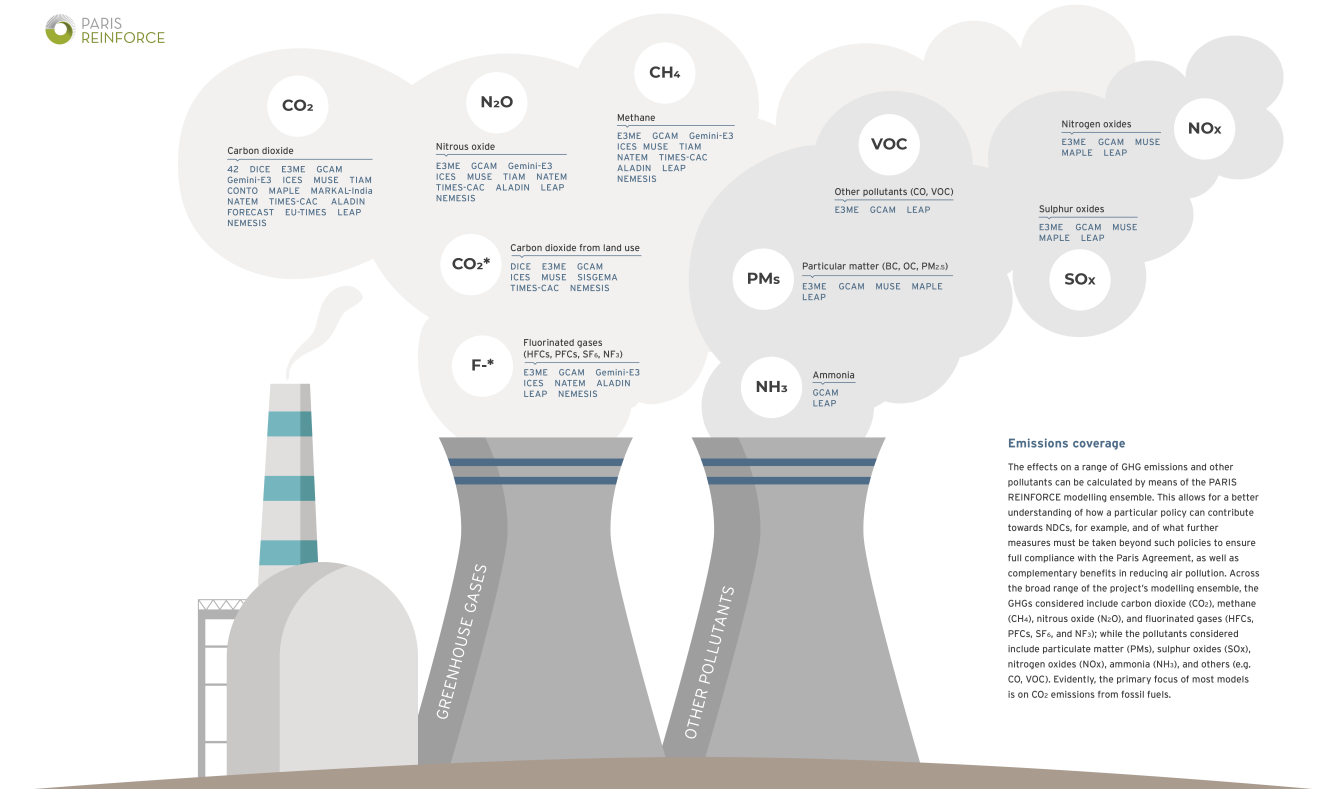


Figure 28: Infographic 5 – Emissions representation in quantitative systems models and the PARIS REINFORCE modelling ensemble

8.8 Infographic 6: Representation of Sustainable Development Goals in PARIS REINFORCE models

This infographic, published in the PARIS REINFORCE website, explains in non-technical detail how indicators relevant to Sustainable Development Goals (SDGs) are represented in climate-economy and energy quantitative system models, and illustrates in a user-friendly way to what extent an SDG is represented in the PARIS REINFORCE modelling suite and what specific indicators can be extracted in this respect.



Sustainable Development Goals

The need to assess climate action in conjunction with other Sustainable Development Goals (SDGs) has in the modelling literature been addressed by means of treating SDGs as trade-offs of low-carbon mitigation pathways, either explicitly or implicitly. Despite having been designed and/or adapted to support climate policy, integrated assessment models like the ones used in PARIS REINFORCE have been found well-equipped to deal with most other goals of sustainable development, through their output metrics related to SDG targets. Each SDG has several metrics influenced by a range of factors, e.g. changes in energy prices are relevant to SDG7 (affordable and clean energy) and also indirectly to SDG1 (eliminating poverty) if considered a driver of poverty. Additionally, the coverage of a particular SDG does not imply the use of the same metric, so different metrics can be used to cover the same SDG, e.g. mortality due to air pollutants and healthy life expectancy for SDG3 (good health and well-being) or access to electricity and renewable electricity share for SDG7. Evidently, global models used in the project have the capacity to provide some information relevant to most SDGs, with the exception of SDGs 14 (life below water) and 17 (partnerships for the goals), with ICES in particular having been explicitly designed to output information on most SDG indicators. Models focusing on the EU, on the other hand, focus on a subset of SDGs (6-13). Overall, models can output more information for SDGs featuring significant interactions with energy and economy.

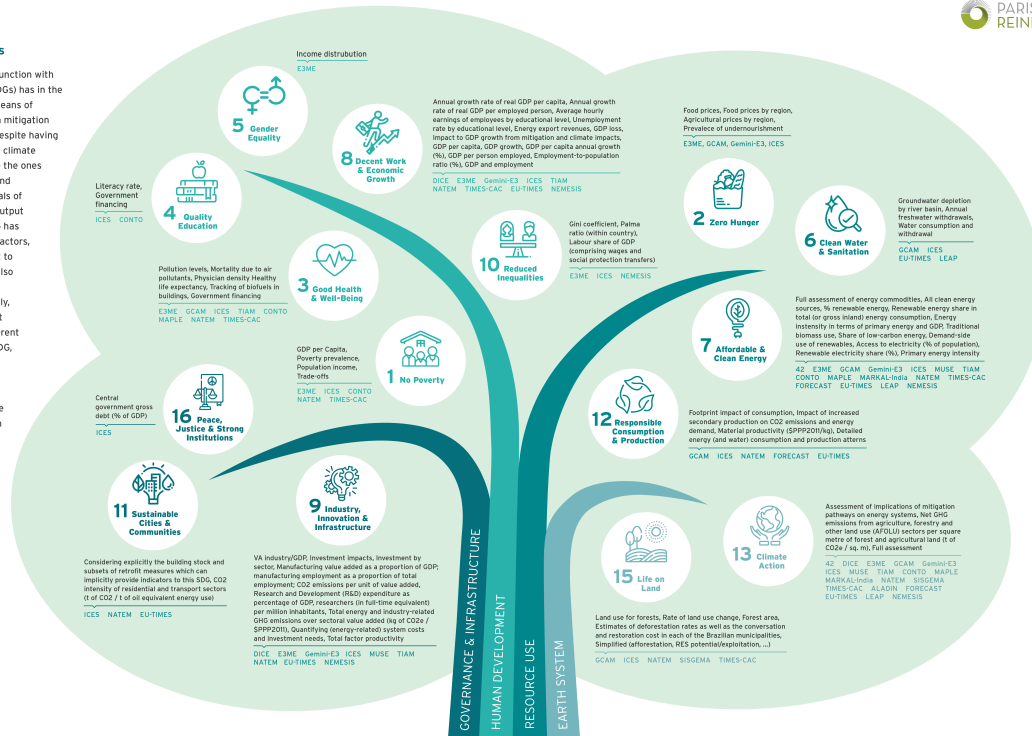


Figure 29: Infographic 6 – SDG representation in quantitative systems models and the PARIS REINFORCE modelling ensemble



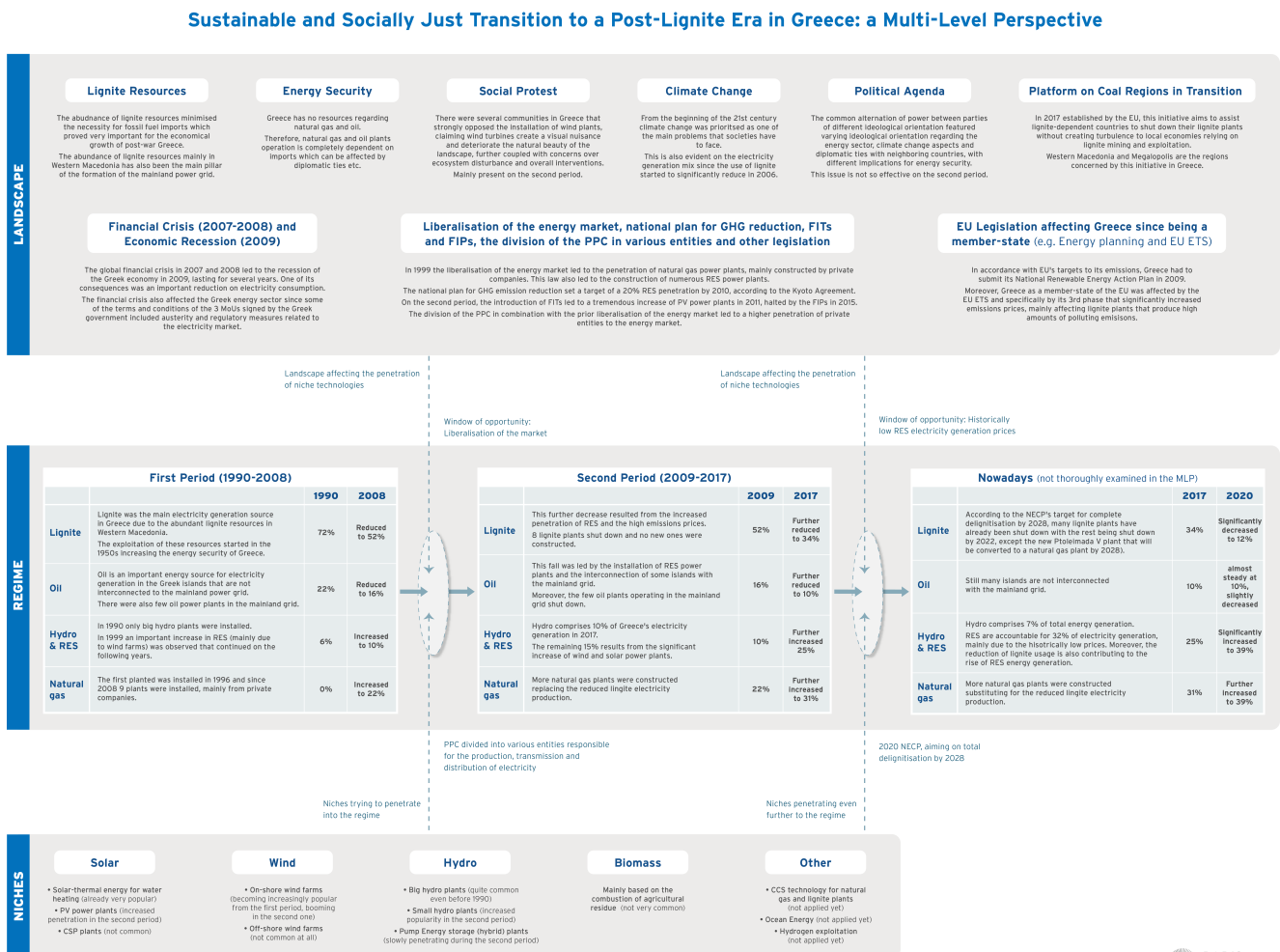
8.9 Infographic 7: Sustainable and socially just transition to a post-lignite era in Greece: a multi-level perspective

This infographic, published in the PARIS REINFORCE website, builds upon the Multi-Level Perspective framework and further focuses on the phase-out of the dominant fossil fuel in the Greek electricity mix, rather than solely exploring the phase-in of new technologies. By delving into the landscape that established lignite as the mainstream energy resource in Greece, as well as the factors sustaining its dominance despite niche technologies and innovations challenging the regime, it discusses how the envisaged decarbonisation can be socially just and effective across multiple sustainability dimensions.

The infographic is based on:

Nikas, A., Neofytou, H., Karamaneas, A., Koasidis, K., & Psarras, J. (2020). Sustainable and socially just transition to a post-lignite era in Greece: a multi-level perspective. *Energy Sources, Part B: Economics, Planning, and Policy*, in press.

<https://doi.org/10.1080/15567249.2020.1769773>



8.10 Infographic 8: Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Norway in Light of the Paris Agreement

This infographic, based on the Sectoral Innovation Systems approach, published in the PARIS REINFORCE website, attempts to identify the elements enabling Norway to become one of the leaders in the diffusion of electric vehicles. By utilising the System Failure framework, bottlenecks hindering the decarbonisation of the transport system are identified. Results indicate that the effectiveness of Norway's policy is exaggerated and has led to recent spillover effects towards green shipping. Insights into the effectiveness of previously implemented policies and the evolution of the sectoral system can help draw lessons towards sustainable transport.

The infographic is based on:

Koasidis, K., Karamaneas, A., Nikas, A., Neofytou, H., Hermansen, E. A., Vaillancourt, K., & Doukas, H. (2020). Many miles to Paris: A sectoral innovation system analysis of the transport sector in Norway and Canada in light of the Paris Agreement. *Sustainability*, 12(14), 5832.

<https://doi.org/10.3390/su12145832>

Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Norway in Light of the Paris Agreement

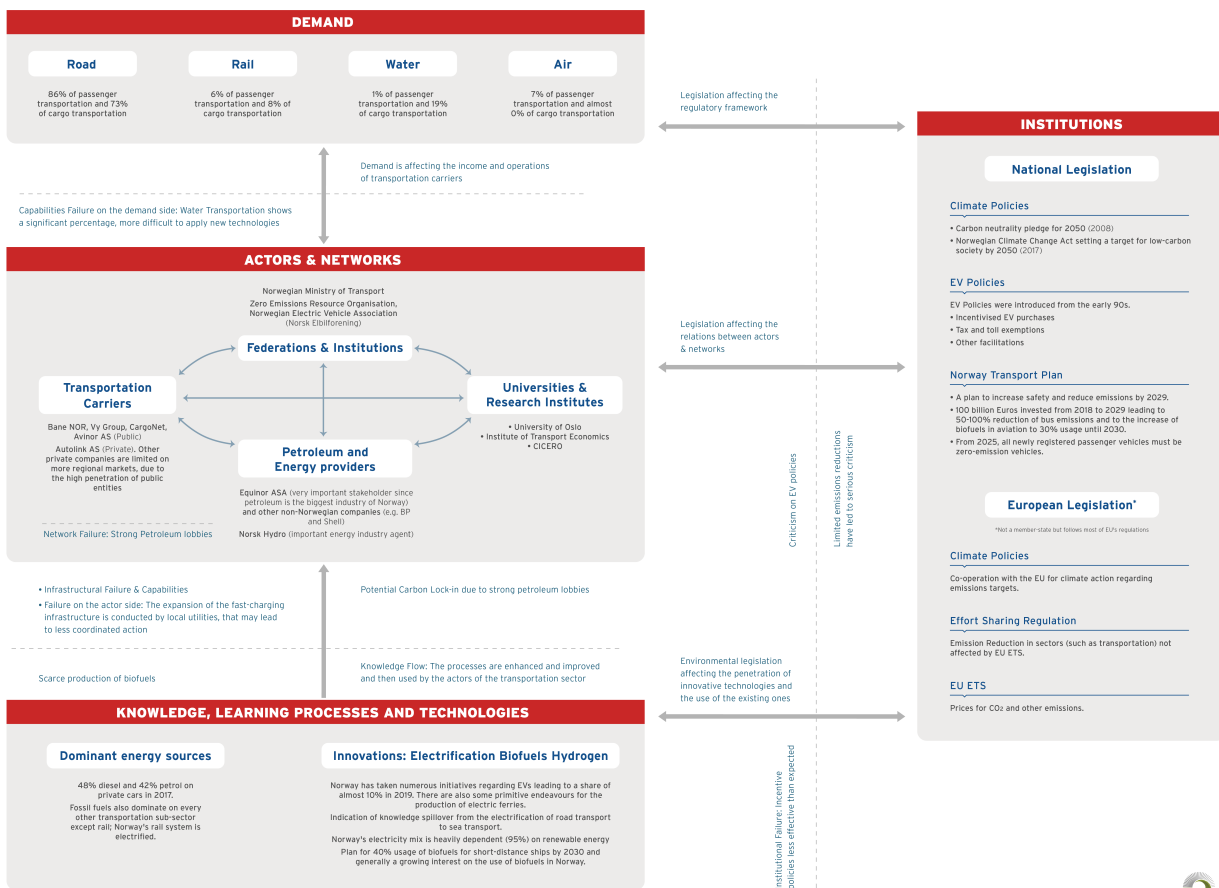


Figure 31: Infographic 8 – Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Norway in Light of the Paris Agreement

8.11 Infographic 9: Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Canada in Light of the Paris Agreement

This infographic, based on the Sectoral Innovation Systems approach, published in the PARIS REINFORCE website, attempts to identify the factors pacing down progress in the diffusion of electric vehicles in Canada. By utilising the System Failure framework, bottlenecks hindering the decarbonisation of the transport system are identified. The activity of oil companies, regional and federal legislative disputes in Canada and the lack of sincere efforts from system actors to address challenges lead to non-drastic greenhouse gas emission reductions, despite significant policy efforts. Insights into the effectiveness of previously implemented policies and the evolution of the sectoral system can help draw lessons towards sustainable transport.

The infographic is based on:

Koasidis, K., Karamaneas, A., Nikas, A., Neofytou, H., Hermansen, E. A., Vaillancourt, K., & Doukas, H. (2020). Many miles to Paris: A sectoral innovation system analysis of the transport sector in Norway and Canada in light of the Paris Agreement. *Sustainability*, 12(14), 5832.

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Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Canada in Light of the Paris Agreement

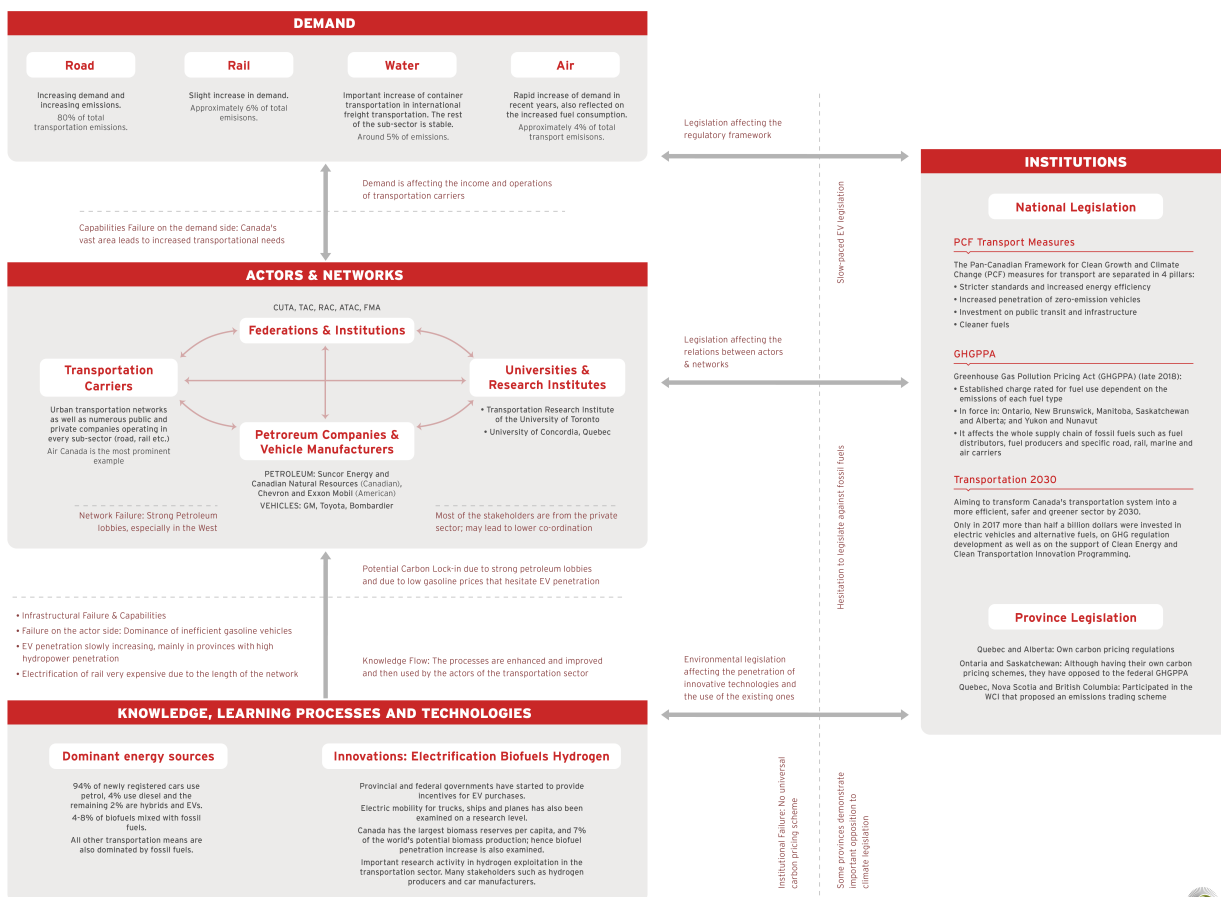


Figure 32: Infographic 9 – Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Canada in Light of the Paris Agreement



8.12 Infographic 10: The UK Low-Carbon Industry Transition from a Sectoral Innovation and System Failures Perspective

This infographic, published in the PARIS REINFORCE website, reviews the energy-intensive iron and steel, cement and chemicals industries of the United Kingdom, a major emitting country with significant activity. Based on the Sectoral Innovation Systems and the Systems Failure framework, it aims to capture existing and potential drivers of or barriers to diffusion of sustainable industrial technologies and extract implications for policy. Results indicate that actor structures and inconsistent policies have limited low-carbon innovation. A key to UK industrial decarbonisation is to drive innovation and investment in the context of an industry in decline and in light of Brexit-related uncertainty.

The infographic is based on:

Koasidis, K., Nikas, A., Neofytou, H., Karamaneas, A., Gambhir, A., Wachsmuth, J., & Doukas, H. (2020). The UK and German Low-Carbon Industry Transitions from a Sectoral Innovation and System Failures Perspective. *Energies*, 13(19), 4994.

<https://doi.org/10.3390/en13194994>

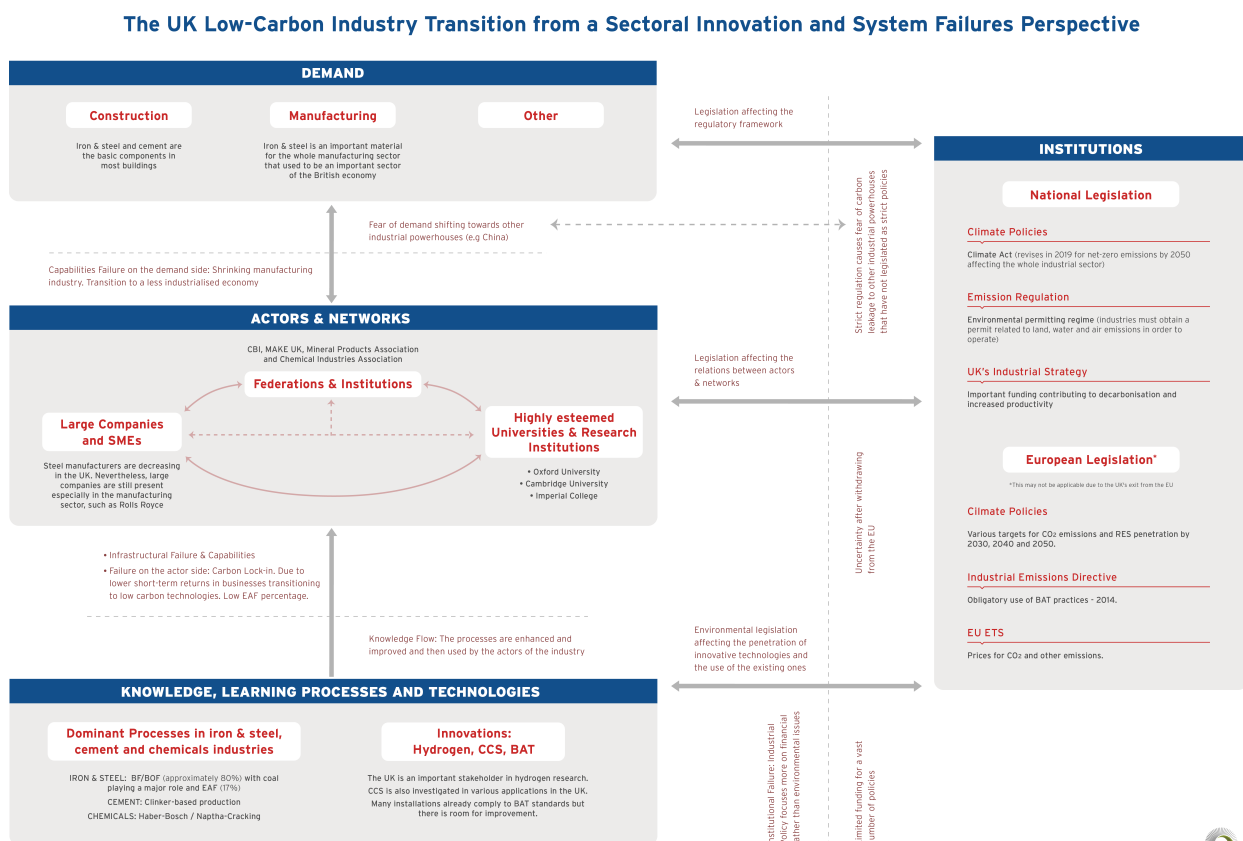


Figure 33: Infographic 10 – The UK Low-Carbon Industry Transition from a Sectoral Innovation and System Failures Perspective



8.13 Infographic 11: The German Low-Carbon Industry Transition from a Sectoral Innovation and System Failures Perspective

This infographic, published in the PARIS REINFORCE website, reviews the energy-intensive iron and steel, cement and chemicals industries of Germany, a major emitting country with significant activity. Based on the Sectoral Innovation Systems and the Systems Failure framework, it aims to capture existing and potential drivers of or barriers to diffusion of sustainable industrial technologies and extract implications for policy. Results indicate that actor structures and inconsistent policies have limited low-carbon innovation. A critical factor for the successful decarbonisation of German industry lies in overcoming lobbying and resistance to technological innovation caused by strong networks.

The infographic is based on:

Koasidis, K., Nikas, A., Neofytou, H., Karamaneas, A., Gambhir, A., Wachsmuth, J., & Doukas, H. (2020). The UK and German Low-Carbon Industry Transitions from a Sectoral Innovation and System Failures Perspective. *Energies*, 13(19), 4994.

<https://doi.org/10.3390/en13194994>

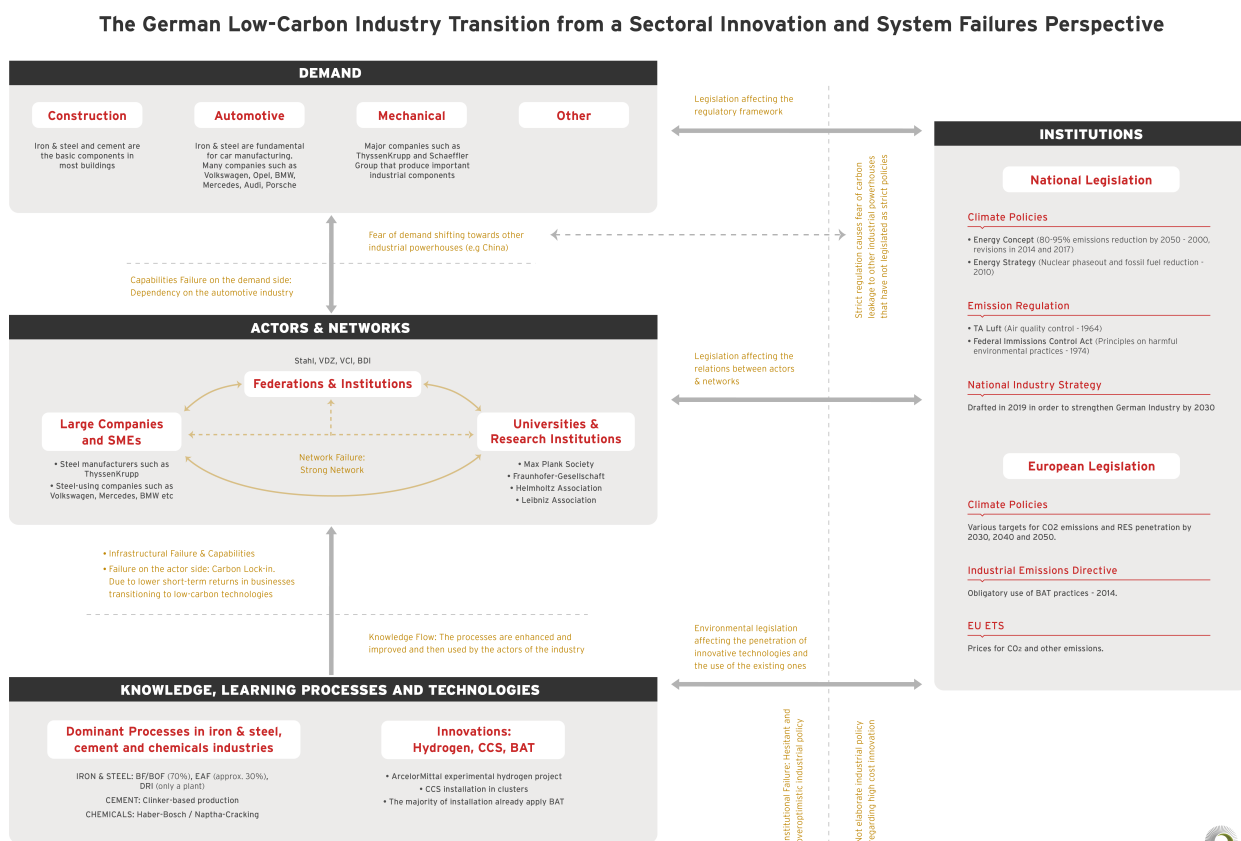


Figure 34: Infographic 11 – The German Low-Carbon Industry Transition from a Sectoral Innovation and System Failures Perspective



8.14 Infographic 12: A Multi-Level Perspective of Brazil's Transport Decarbonisation Potential, Focusing on the Biodiesel Technological Innovation System

This infographic, published in the PARIS REINFORCE website, reviews the transport sector of Brazil and the emergence of biodiesel. Using the MLP and TIS frameworks, it sheds light on the historical evolution of the dominant regime of the Brazilian transport sector and helps understand how the dependency of fossil fuels was shaped in line with continuous pressures from oil, economic, and institutional crises from the landscape. It also highlights the emergence of the biodiesel technological system, its interactions with other technologies, and the progress that allowed it to break through from a niche and become part of the regime.

A Multi-Level Perspective of Brazil's Transport Decarbonisation Potential, Focusing on the Biodiesel Technological Innovation System

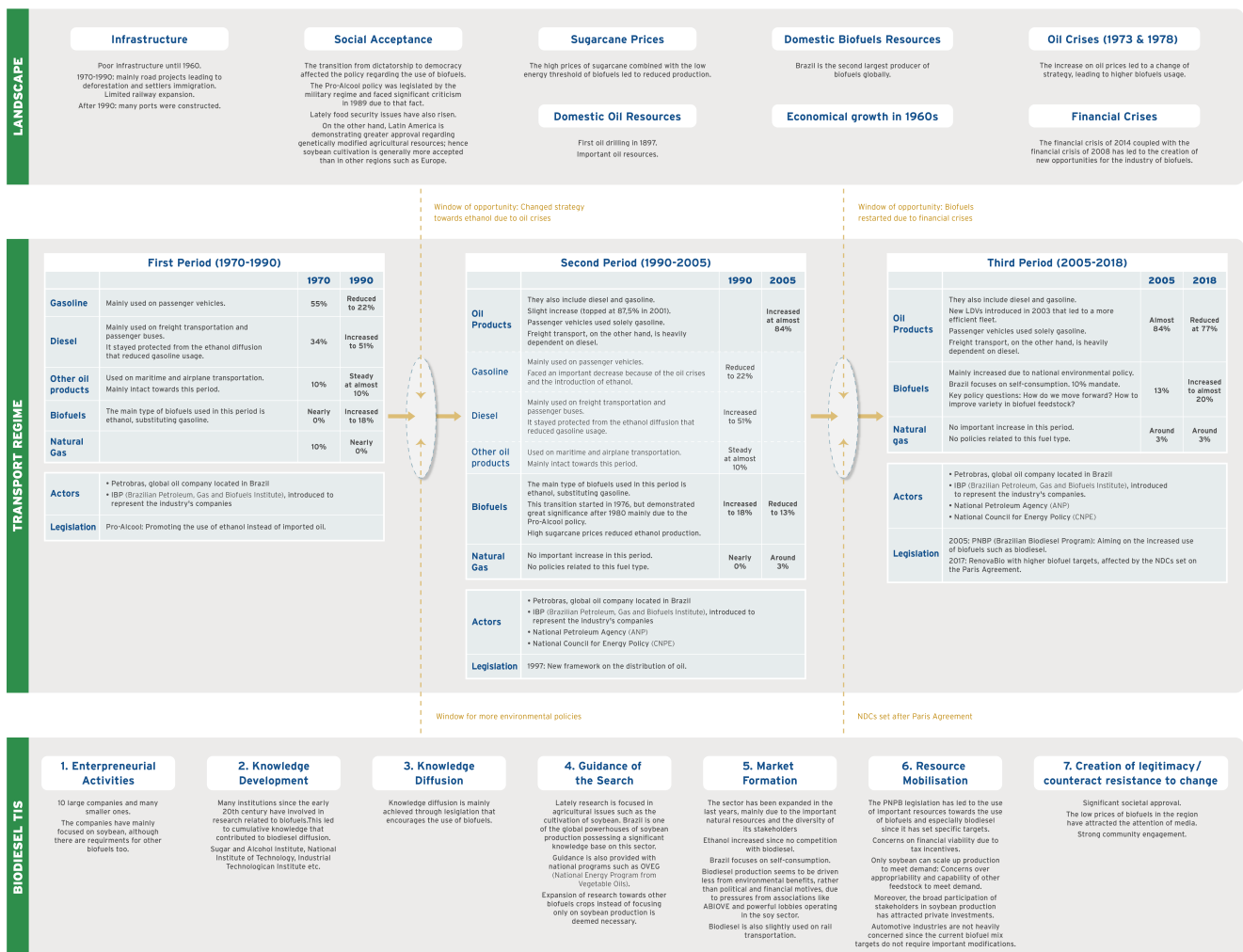


Figure 35: Infographic 12 – A Multi-Level Perspective of Brazil's Transport Decarbonisation Potential, Focusing on the Biodiesel Technological Innovation System



The PARIS REINFORCE project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 820846.

8.15 Infographic 13: A Multi-Level Perspective of Argentina's Transport Decarbonisation Potential, Focusing on the Biodiesel Technological Innovation System

This infographic, published in the PARIS REINFORCE website, reviews the transport sector of Argentina and the emergence of biodiesel. Using the MLP and TIS frameworks, it sheds light on the historical evolution of the dominant regime of the Argentinian transport sector and helps understand how the dependency of fossil fuels was shaped in line with continuous pressures from oil, economic, and institutional crises from the landscape. It also highlights the emergence of the biodiesel technological system, its interactions with other technologies, and the progress that allowed it to break through from a niche and become part of the regime.

A Multi-Level Perspective of Argentina's Transport Decarbonisation Potential, Focusing on the Biodiesel Technological Innovation System

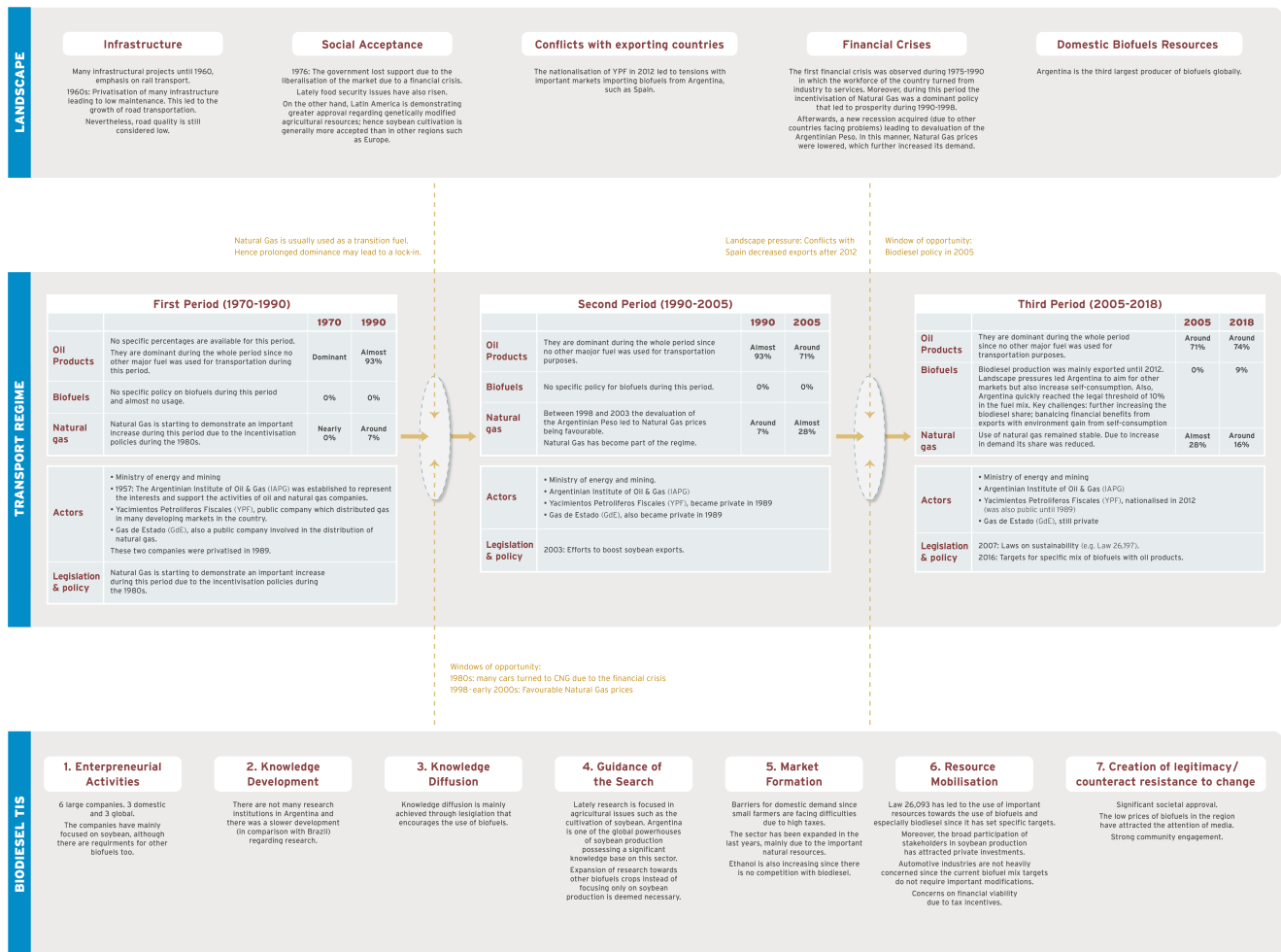


Figure 36: Infographic 13 – A Multi-Level Perspective of Argentina's Transport Decarbonisation Potential, Focusing on the Biodiesel Technological Innovation System



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