s-curve economics

Annual report 2024-2025

Welcome

S-Curve Economics CIC is dedicated to advancing understanding of the economics of the transition from fossil fuels to clean technologies.

We produce analysis to inform action on the transition, using economic concepts and tools consistent with the context of rapid innovation and deep structural change. We also provide guidance and tools for others to use in making their own analysis.

We work with the leading academic researchers of the economics of transition, and top experts in the major greenhouse-gas emitting sectors of electricity generation, road transport, and steel, bringing these fields of expertise together to produce decision-relevant analysis. We are international in our partnerships and in the focus of our work.

Our findings can be used by governments, businesses, and civil society organisations. By helping governments and other actors target their efforts more effectively, we aim to enable a faster and less difficult transition, with lower costs and greater economic gains.

S-Curve was incorporated on 23 April 2024. In our first year of operations, we are grateful for the welcome and generous collaboration we have received from others working in this community.

Funding

S-Curve Economics CIC is a non-profit organisation. In the past year we have received funding from philanthropy and government sources both in the UK and abroad. Our funders include Energy Foundation China, Quadrature Climate Foundation, and the UK Department for Energy Security and Net Zero. Further information on our funders is shown on the projects page of our website.

Our projects and their publications represent the views of their authors, and should not be taken to represent the views of any of their funders. We are grateful for the support that has made our work possible.

S-Curve Economics is registered as a Community Interest Company under registration number 15673351.

Our approach

We conduct focused projects to develop a better understanding of the economics of the low carbon transition in specific sectors, as well as engaging widely to share this understanding within the community of researchers and policymakers working on the transition.

Research

Our research is grounded in academic understanding, informed by practical sector expertise, and produced in partnership with colleagues from some of the countries that matter most to the global transition.

In our first year we produced major reports on analytical tools for the low carbon transition, and the dynamics of the power sector transition in China, as well as policy briefs on trucks, transition milestones, and tipping cascades.

Events

We bring people together for in-depth discussions that challenge assumptions about the future, and that work constructively with uncertainty and different national perspectives.

Our workshops on the steel transition have brought together leading thinkers from eight countries important to the sector, to grapple with the question of how to align industrial competition with the shared goal of advancing the global transition.

Community

We benefit from the knowledge and experience of others in our field, and we work to share the new understanding of the economics of the transition as widely as we can.

We have contributed to building an international network of researchers working with finance ministries to better understand the transition. Our work has been cited in reports of the World Bank and OECD, and shared with finance ministry officials from over a hundred countries.

Power Sector Reform

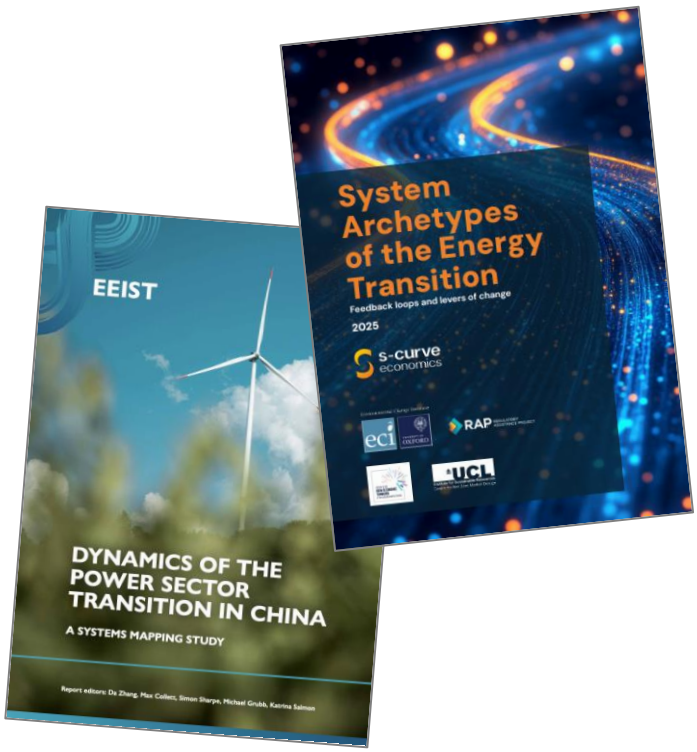
The direction of change in the power sector is clear – from coal and gas to solar and wind, as the dominant technologies – but how to achieve that change quickly and cost effectively, while keeping electricity prices low and security of supply high, is less obvious.

We led a project to investigate the interactions between policies, technologies and markets in the transition to clean power, working with power sector experts in the UK and China. We used systems mapping with causal loop diagrams to understand the feedbacks created by these interactions, and to identify high leverage points of intervention.

Our partners in this project were: University College London, Tsinghua University, the Energy Research Institute of the Chinese Academy of Macroeconomic Research, Beijing Normal University, Oxford University, and the World Resources Institute China.

Engagement and events

- We held extensive discussions with power sector experts and government officials in the UK and China.
- We organised participatory systems mapping workshops with Chinese power sector experts in Beijing.



Research findings

- *Dynamics of the Power Sector Transition in China: a systems mapping study* is the major report containing the findings of this project. It uses systems mapping to provide a new perspective on the power sector transition in China, drawing on insights from the UK experience where appropriate.
- The policy brief *System Archetypes of the Energy Transition: feedback loops and levers of change* shows how systems mapping can be used to understand typical dynamics of clean energy transitions that are likely to play out across many countries and sectors.

These two reports reflect work done in the 2024-25 financial year, and were published early in the 2025-26 financial year.

Road Transport

The transition from petrol and diesel cars and trucks to zero emission vehicles is of interest to governments, industry and society for many reasons – jobs, air quality, oil imports, vehicle exports, and emissions are all in the balance.

We worked with partners in the Economics of Energy Innovation and System Transition project, in particular Exeter University and Cambridge Econometrics, as well as top sector experts at the International Council on Clean Transportation, on a modelling study to compare the effectiveness of different policies in advancing the transition to zero emission vehicles in heavy road transport.

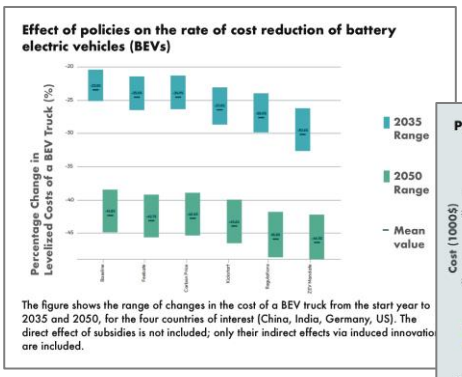
Engagement and events

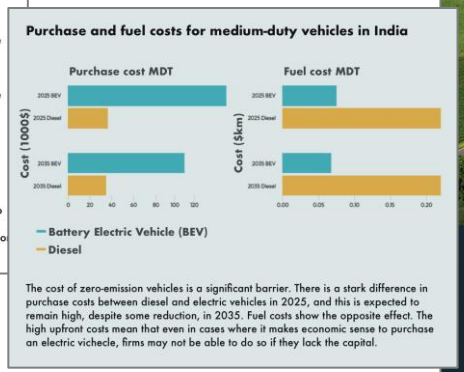
- Our analysis was shared with government, industry and expert stakeholders at Smart Freight Week in Amsterdam in March 2025.
- Engagement on this work continued into the 2025-26 financial year, with findings presented to policymakers from around 20 countries at the annual summit of the Global Memorandum of Understanding on Zero Emission Medium and Heavy-Duty Vehicles, and shared with the research community at the Transatlantic Transport Decarbonisation Summit.

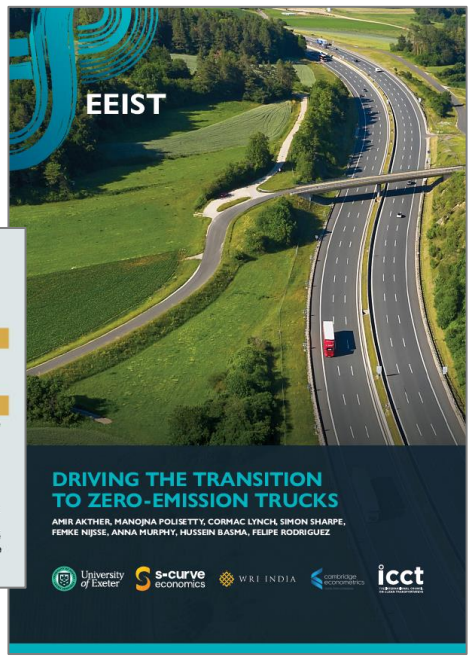
Research findings

- The policy brief *Driving the transition to zero-emission trucks* shows how subsidies, regulations, taxes, and mandates have different effects on the sales share of vehicle technologies, the future cost of electric vehicles, and the pace of the transition.

The policy brief reflects work done in the 2024-25 financial year, and was published early in the 2025-26 financial year.







Steel

We are working to develop a shared understanding among the expert community in major economies on how effective national action and international cooperation can advance the transition to clean steel.

We have joined with leading research institutes in China, India, Brazil, Africa, the UK, France and Japan, to form the Breakthrough Agenda Policy Network, whose purpose is to identify opportunities for international cooperation to overcome difficult problems in the low carbon transition. The group takes its name from the Breakthrough Agenda, a process in which countries accounting for over three quarters of the global economy have committed to work together to make clean technologies and sustainable solutions more affordable, accessible and attractive than fossil fuels in each of the emitting sectors, before the end of this decade.

Engagement and events

- We held the first in-person meeting of the Breakthrough Agenda Policy Network at COP29.
- The Network has held a series of online workshops on different aspects of the steel transition.
- We held a steel transition scenarios exercise with government, industry and research community stakeholders in Brussels in March 2025.

Research findings

This work continues into the 2025-26 financial year with further steel transition scenario exercises held in Beijing, Washington DC, and London. Research findings will be published in the autumn of 2025.

Analytical Tools

The low carbon transition is a process of innovation and structural change. The analytical tools that are appropriate for this context are different from those that are based on an assumption of marginal change.

In the past year we coordinated the work on innovation in the Coalition for Capacity on Climate Action (C3A), an initiative hosted by the World Bank to support Ministries of Finance in responding effectively to the threat of climate change and the risks and opportunities of the low carbon transition. We worked with a wide range of partners to develop, test and share analytical tools and conceptual frameworks that can help governments navigate the transition.

Engagement and events

We engaged with finance ministry officials and researchers from many countries in events including:

- The Forum on the Macroeconomics of Green Transitions, in April 2024.
- The Clean Energy Ministerial, in October 2024.
- COP29 in November 2024.
- The C3A Symposium, in December 2024.

Research findings

- Our report *Analytical tools for innovation and competitiveness in the low carbon transition* sets out the range of analytical tools and conceptual frameworks that can be useful to inform decisions in the context of the transition.
- A working paper on *Risk-Opportunity Analysis* presents a decision-making framework appropriate for situations of uncertainty, diverse interests and structural change.
- The policy brief *Carbon budgets are not enough: the case for transition milestones* proposes a governance framework that could focus attention on the actions that matter most for a successful transition.
- Policy briefs on *tipping point case studies* and the potential for a *positive tipping cascade in power, transport and heating* highlight opportunities for well-targeted actions to make clean technologies more attractive than fossil fuels.

Future plans

We aim to develop further analysis on the power, road transport and steel sectors, identifying the actions best able to advance economic objectives at the same time as enabling transformational change towards zero emission systems.

We will also continue to strengthen the set of analytical tools and conceptual frameworks that we offer to governments, industry and researchers, to inform decisions as they navigate the transition.

We will expand our connections with other researchers working in this field in the UK and internationally. We aim to contribute to strengthening the community of researchers building a better understanding of the economics of the transition.

S-Curve Economics CIC
www.scurveeconomics.org