Energy Transitions Commission

ETC impact: Highlights from 2024, and future areas of focus into 2025

ETC Commissioners Meeting

27th June 2024

ETC impact
Highlights so far this year

ETC 2024 work programme

Extending our influence in the global climate debate

- Disseminating ETC insights & recommendations
- Leveraging exsisting knowledge
- Informing the influencers

Delivering action through future COPs

- Ambition and format of NDCs
- COP 29, 30, 31

Building the clean energy system faster

	Main reports	*Shorts*
Power system transformation – barriers to clean electrification	**Grids** **Energy storage & flexibility**	**Offshore wind** **Power demand growth**
Energy productivity	**Buildings decarbonisation**	**Road transport** **HTA sectors (MPP)**
	Energy Productivity across the economy	

Building the ETC regional network

Supporting the MPP

MISSION POSSIBLE PARTNERSHIP

Supporting the ETC members

Highlights from 2024 so far…

Media

1.6k stories this year. Highlights include:

Leaders | Let them dig

The world needs more critical minerals. Governments are not helping

Just obtaining a permit takes a remarkably long time

The Economist

Commodity markets are in a 'super squeeze' — and higher prices could be here to stay

CNBC

Lex in depth: how the hydrogen hype fizzled out

FINANCIAL TIMES

Newsletters

24,000 subscribers and over **5,000 subscribers on LinkedIn**,

Social Media

X: **26K impressions**

LinkedIn: **78.2K impressions**, 5% avg. engagement rate.

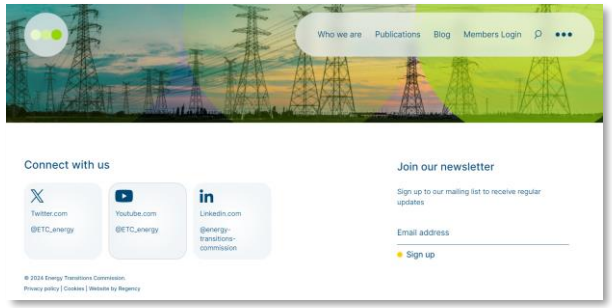
Videos

9 new videos on YouTube channel

How to reach net-zero: Infrastructure and Skills

Website refresh

~40k visits, **~9k** report downloads.



Events

ETC has spoken at 40 events around the world:

ETC member engagement highlights in 2024 so far

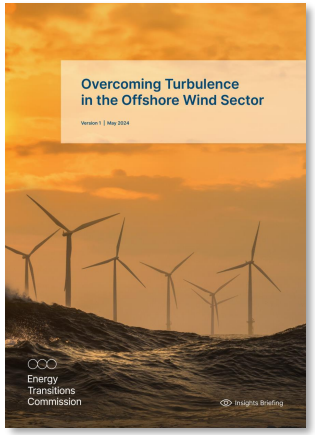
4 Key meetings

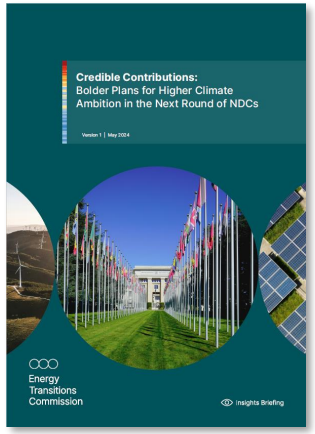
- 2x Representatives' Meetings
- 1x EU strategy meeting
- 1x Comms Club

9 Expert workshops

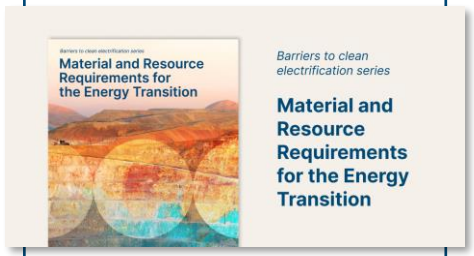
- 1x Ambition and format of NDCs
- 4x Buildings decarbonisation
- 2x Grids
- 1x Energy storage & flexibility
- 1x Road transport

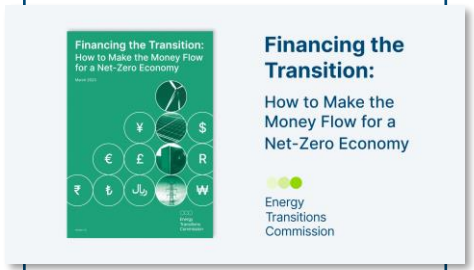
2 Reports produced





2 Webinars





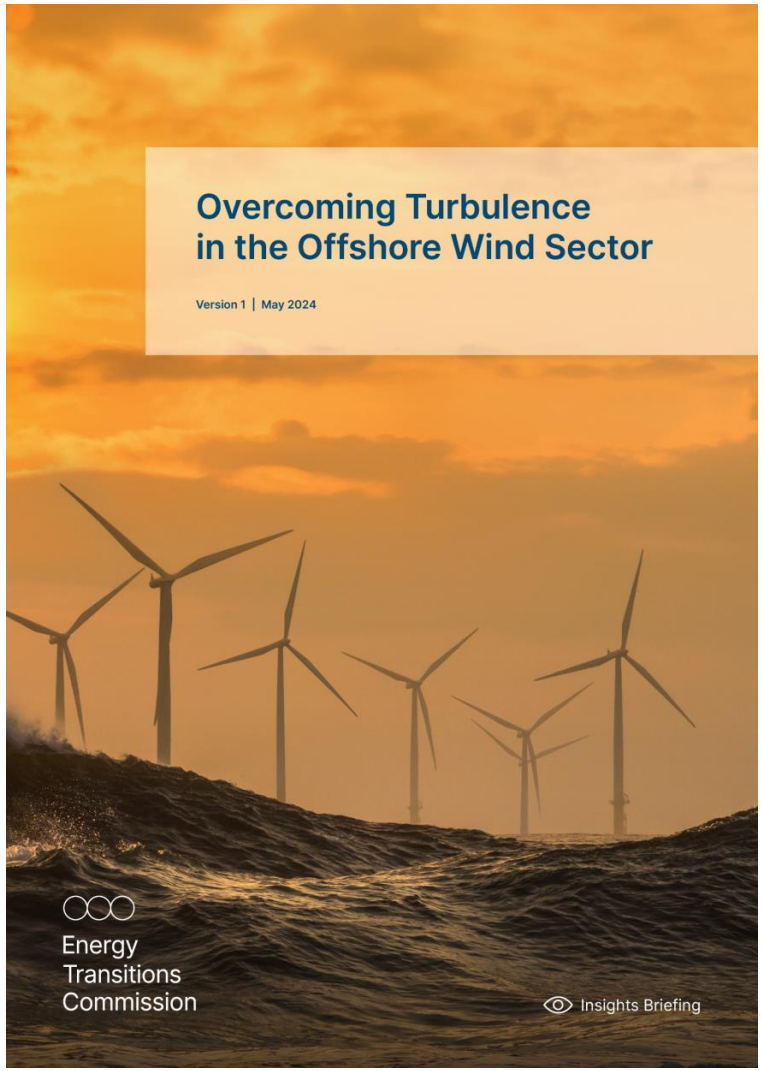
3 Regional trips

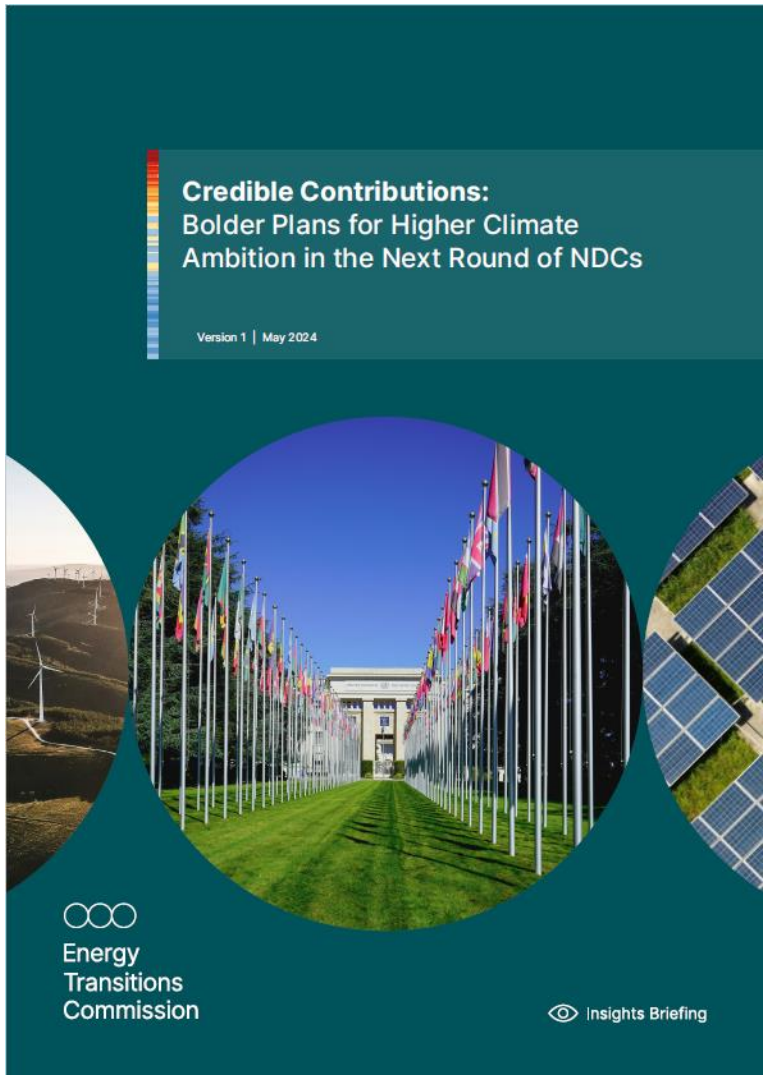
India-Indonesia

Brazil

Canada

We have launched two ‘insights briefings’ this year…





ETC Insights Briefings are shorter reports developed to respond to the key debates by re-packaging, updating and expanding our point of view to:

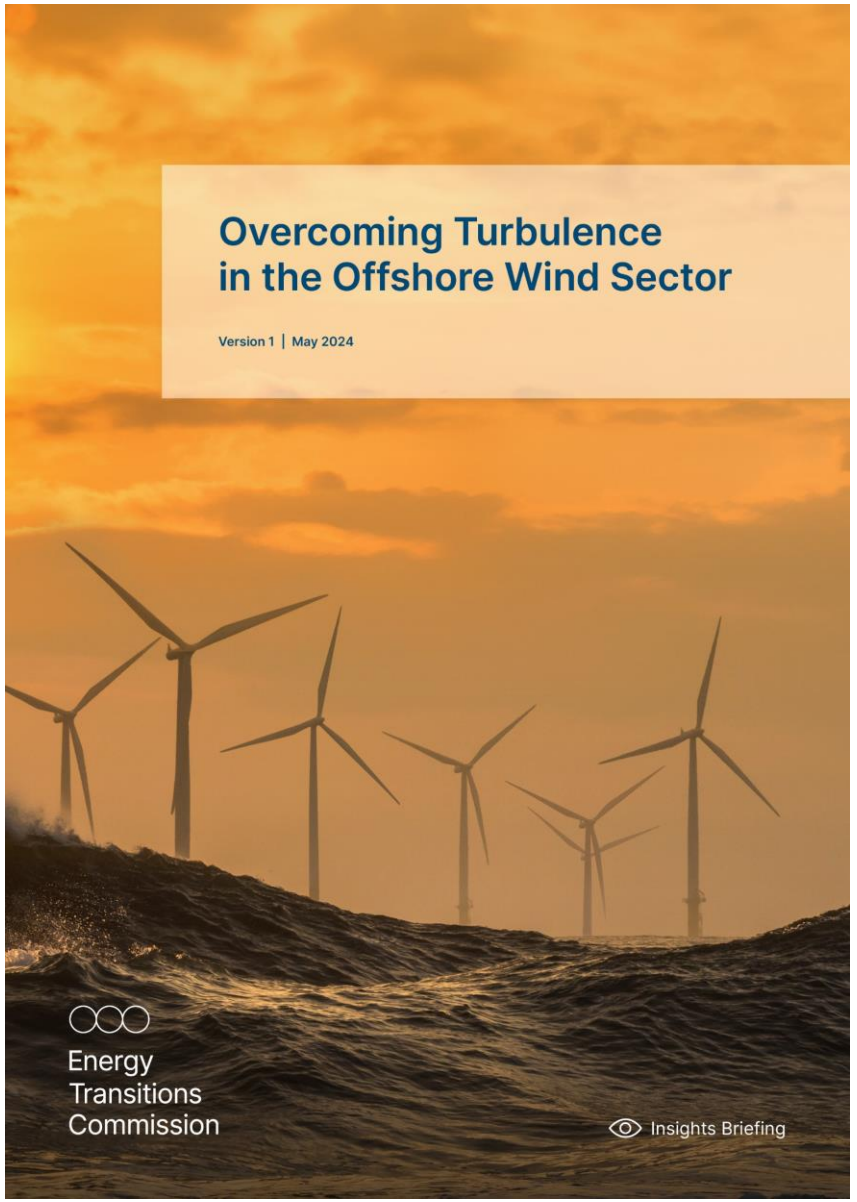
- Repeat & reinforce key messages
- Provide a point of view on live debates
- Deliver impact over an extended period

Offshore Wind Insights Briefing Key Messages

Governments and the offshore wind industry must join forces to restore confidence in the market, drive down costs and accelerate the clean energy transition.

Key messages:

- Offshore wind is **already delivering large-scale clean electricity** at a competitive cost around the world
- But in 2022-2023, inflation, supply chain bottlenecks and higher interest rates led to **rising offshore wind costs** in some markets.
- While increases were significant, they're mostly expected to be **short-term.**
- **Governments and industry must closely collaborate** to relaunch confidence in offshore wind markets and bring down costs.
- Setting ambitious targets, reducing risks of non-delivery, streamlining planning and permitting, achieving economies of scale and addressing supply chain bottlenecks will help to achieve this.



Since launch, ETC has targeted engagement with industry and trade media

Targeting international trade media in regions where the offshore wind industry is maturing

What crisis? | Governments must show world they have faith in offshore wind, says ETC

RECHARGE

Recommendations are intended to provide sector with new impetus after ramp-up lost momentum last year

BusinessGreen

Is the offshore wind sector in crisis, or is it doing better than ever?

ETC: Boosting Offshore Wind to Energize Clean Energy Transitions

Environment +Energy LEADER

STRATEGY

Offshore Wind Problem-Solving Within Reach

Energy Intelligence

Informing new international audiences through briefings

POLITICO

windpowernl

THE TIMES

The Washington Post

ENERGÍAS RENOVABLES

WSJ

Collaborating with ETC members to engage with the offshore wind industry

VATTENFALL

sse

GWEC GLOBAL WIND ENERGY COUNCIL

Ocean Energy Pathway

octopus energy

IBERDROLA

ARUP

Climate Change Committee

Vestas

BloombergNEF

Rabobank

SIEMENS Gamesa RENEWABLE ENERGY

Brazil Windpower

GLOBAL WIND DAY 15 JUNE

Wind EUROPE

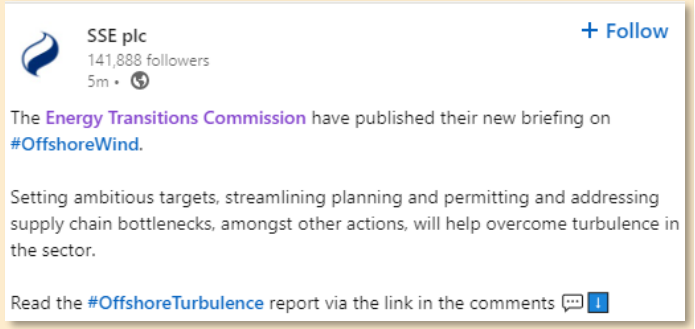
#LCAW2024

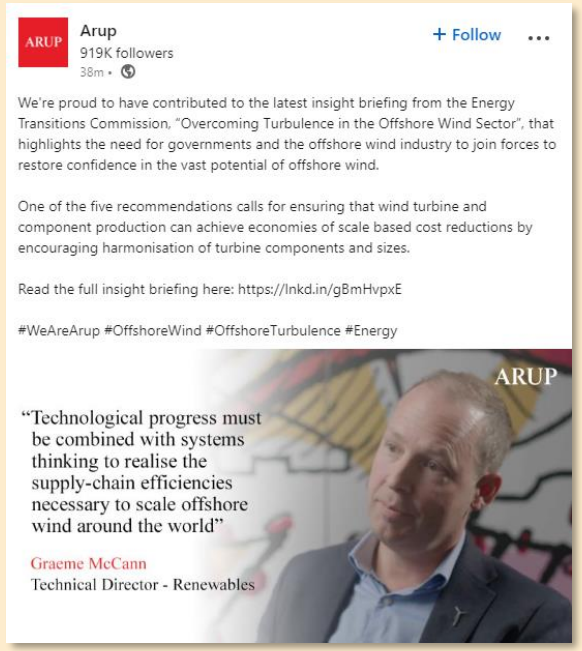
LONDON CLIMATE ACTION WEEK

22 - 30 JUNE 2024

Digital storytelling with support from ETC membership

ETC members provide voices from industry





ETC engaged in the debate by capturing key messages from the report in short, sharable videos

1

Is the Offshore Wind Sector in Crisis?

2

Outlook on Offshore Wind Sector from SSE Renewables

3

The Role of Offshore Wind in the Energy Transition

4

Are Recent Cost Increases in Offshore Wind Temporary or Permanent?

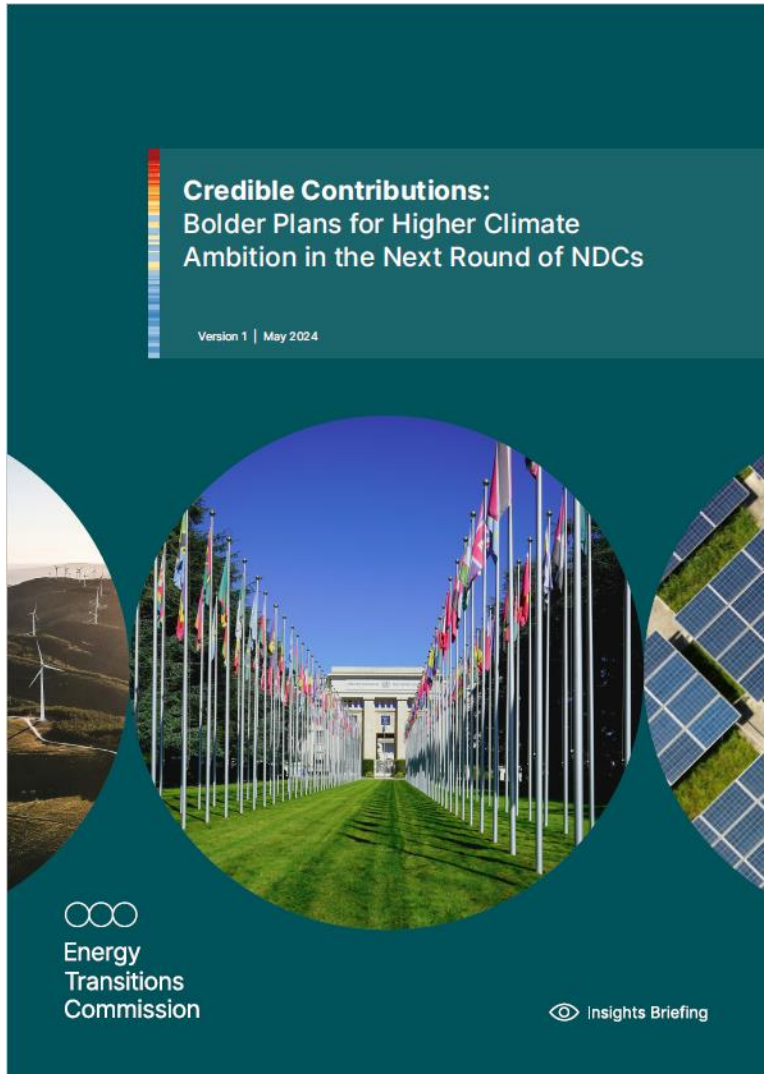
5

How to Return Confidence in Offshore Wind Sector

<u>Reach</u> *<u>(6.1% engagement rate)</u>*

Video 1 - 2.1k views
Video 2 – 5.2k views
Video 3 – 3k views
Video 4 – 1.2k views
Video 5 – 7.5k views

NDC Insights Briefing Key Messages



The ETC calls for industry and government collaboration to raise the ambition of the next round of NDCs due by COP30 to limit the impact of climate change.

Key messages

- Success in the transition to date has been driven by **industry's response to ambitious government targets – accelerating deployment and driving down costs.**
- If governments **reflect existing policy commitments and the latest technological progress** in the next round of NDCs, overall ambition could triple.
- Industry recognises the opportunity and calls on governments to prioritise delivering **high-ambition NDCs which will provide certainty, unlock investment and accelerate technology deployment.**
- Ambition alone will not translate into progress. NDCs 3.0 must help turn ambition into action with **clear and detailed roadmaps for implementation, measurable, comprehensive and granular targets and investable plans, especially in emerging markets.**

Launched with endorsement from leading voices

"The next round of national climate plans – NDCs 3.0 - are due from early next year and will be among some of the most important policy documents produced so far this century. Each country's NDC is for it to decide – they are after all nationally determined, so it's not one-size-fits-all. As the Energy Transitions Commission report underscores, these new plans can serve as powerful blueprints, to propel countries' economies and societies forward." **Simon Stiell, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC).**

"This analysis provides further evidence of just how much political ambition in NDCs is lagging behind the rapid technological progress we have witnessed in recent years. It shows that tripling ambition in updated climate plans now merely means catching up with the exponential growth of clean technologies that is already underway and the climate commitments that have already been made. However, what is truly required in this moment – in which climate impacts are hitting harder every month – is the courageous leadership that takes us beyond what's already possible and into what's truly needed to protect people and planet." **Christiana Figueres, Founding Partner of Global Optimism.**

Photo (top) courtesy of IISD/ENB - Kiara Worth

International engagements starting at Bonn Climate Change Conference

Engagement with climate network

United Nations Framework Convention on Climate Change

COP29 Baku Azerbaijan

wbcsd

COP28 UAE

GLOBAL OPTIMISM

UN CLIMATE CHANGE HIGH-LEVEL CHAMPIONS

Climate Action

We Don't Have Time.

Energy&Climate INTELLIGENCE UNIT

NDC PARTNERSHIP

Global Strategic Communications Council

Participation at international events:
UN Climate Change Conference in Bonn and LCAW

ETC hosted a full-house workshop at the UN office in Bonn convened reps from EU, Canada, Chad, Zimbabwe, Germany and UK, and organisations including WBCSD, WMBC, NDC Partnership and Climate Champions and corporates (Google, IKEA)

And plan to use **LCAW, New York Climate Week, COP29** to engage with climate network and as international media "hooks" to keep the conversation going

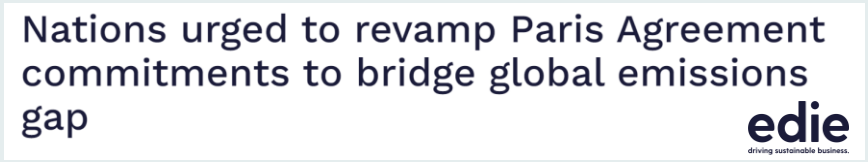
LONDON CLIMATE ACTION WEEK

CLIMATE WEEK NYC °CLIMATE GROUP

COP29 Baku Azerbaijan

International media targeted

Global newswire distribution to 144 countries, supported by translations into Chinese, French, Spanish, and Portuguese helped to land over **800 news stories** in the week of launch



And conducted briefings with broadcast and print media…

The Guardian

FT FINANCIAL TIMES

TRT

The Telegraph

Further work to be done to engage with international media, especially targeting India, China, Brazil, EU and US.

BBC

euronews.

CNN

ALJAZEERA

GLOBO

CNBC

Caixin

CGTN

Bloomberg

THE WALL STREET JOURNAL.

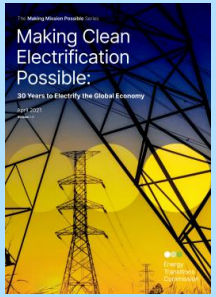
TOI

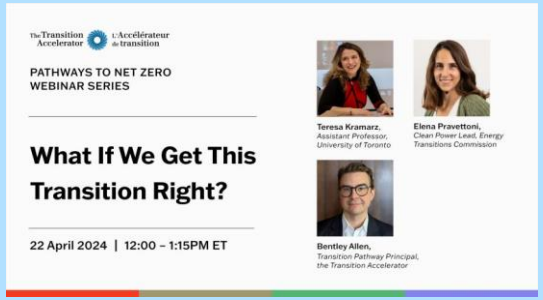
REUTERS

The Economist

Repackaging and amplifying ETC insights so far in 2024

Beating the drum on Clean Electrification across new regions and audiences

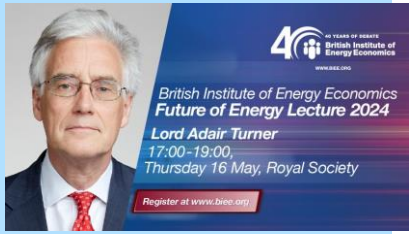




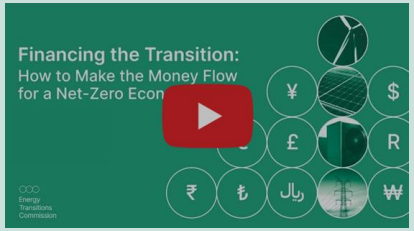
THE GLOBE AND MAIL

'Faster and cheaper than we dared think possible': Why a global leader in the energy transition is still feeling optimistic

How to reach net-zero: Planning & Permitting



Leveraging our reputation to spur conversation on the scale up of Finance

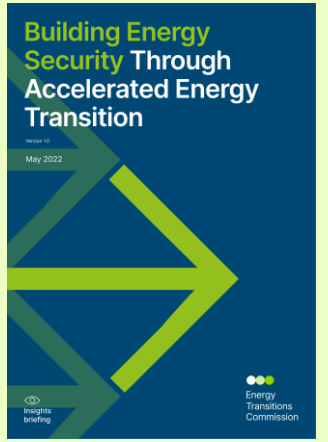


SustainableViews
Navigating ESG policy and regulation

Why cash, not regulation, may hold key to halting deforestation

Climate Investment Summit

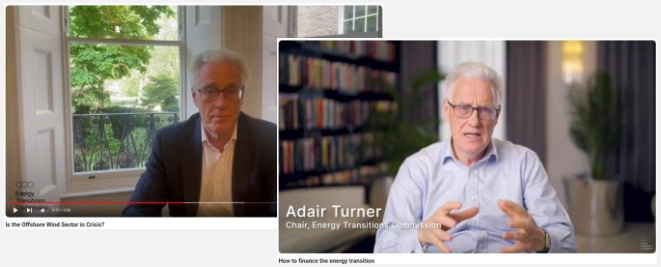
Pre-EU election, we prepared EU Energy Security factsheet leveraging existing analysis post-Ukraine



Informing the influencers and reaching new audiences so far in 2024

Expanding digital storytelling beyond news programmes, via **explainer series** and developing **talking head videos**

amazon prime video

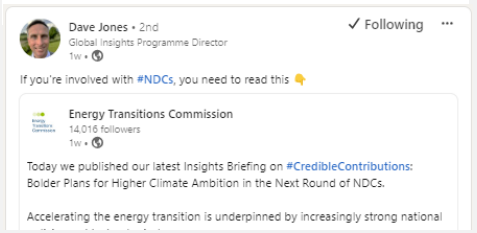


Leveraging social networks and collaborating with **communications partners**

Climate Action

EMBER
COAL TO CLEAN ENERGY POLICY

GLOBAL OPTIMISM



World Climate Foundation

GLOBAL STRATEGIC COMMUNICATIONS COUNCIL

Broadening our media reach - outside climate & internationally

THE GLOBE AND MAIL

'Faster and cheaper than we dared think possible': Why a global leader in the energy transition is still feeling optimistic

The Telegraph

CHINA DAILY

THE TIMES

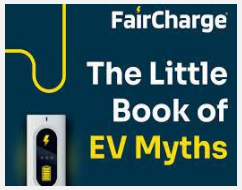
The night that James Norton told me to turn off the lights

New Delhi Times

CORRIERE DELLA SERA

Expanding our reach to new audiences and interest groups

sustainability unlocked



UNIVERSIDAD Panamericana

Erasmus University Rotterdam

GIIA Global Infrastructure Investor Association

ETC 2025 work-programme – initial discussion

In our 2024 work-programme we proposed a two year work-programme across the following areas

1. **Building the clean energy system faster** — Analytical programme
2. **Extending our influence in the global climate debate** — Communications programme
3. **Building the ETC regional network** — Regional programme
4. **Delivering action through future COPs**
5. **Supporting the MPP** — MISSION POSSIBLE PARTNERSHIP
6. **Supporting the ETC members**

We are now 1/ 4 quarter of the way through this work and we want to:

- Share overview of where we plan to focus over next 18 months, in particular: Analytical programme, Communications & outreach, COPs engagement
- Discuss prioritisation, any additional areas.

Last year we proposed a two year work-programme

1

Extending our influence in the global climate debate

Analytical programme

2

Extending our influence in the global climate debate

Communications programme

3

Building the ETC regional network

Regional programme

4

Delivering action through future COPs

5

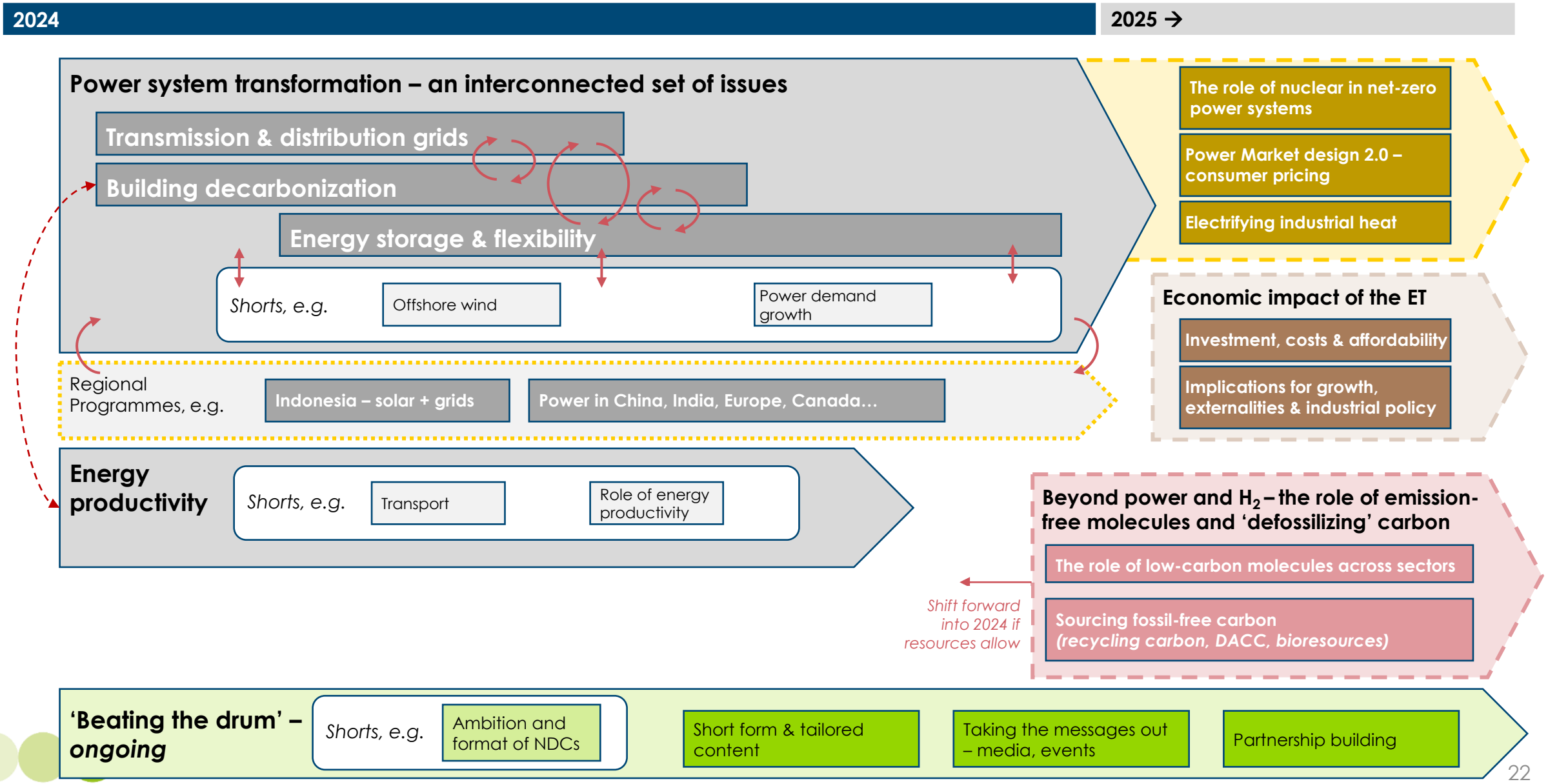
Supporting the MPP

MISSION POSSIBLE PARTNERSHIP

6

Supporting the ETC members

2024 – major focus on everything to do with electricity
2025 – 3 areas: carbon molecules, economic impacts & further power



2025 analytical work-programme

1. Publishing 2024 insights (Q1 focus)

1. Managing the system balancing challenge
2. Building and optimising girds
3. The role of energy productivity across the economy

2. Carbon molecules - role of emission-free molecules and 'defossilizing' carbon

- The role of low-carbon molecules across sectors (how far power + H2 derivatives can go)
- Sourcing fossil-free carbon (recycling, DACC, bioresources)

Aiming to start in 2024 with additional philanthropic funding

3. Economic impacts of the Transition

- Investment, costs & affordability
- Implications for growth, externalities & industrial policy

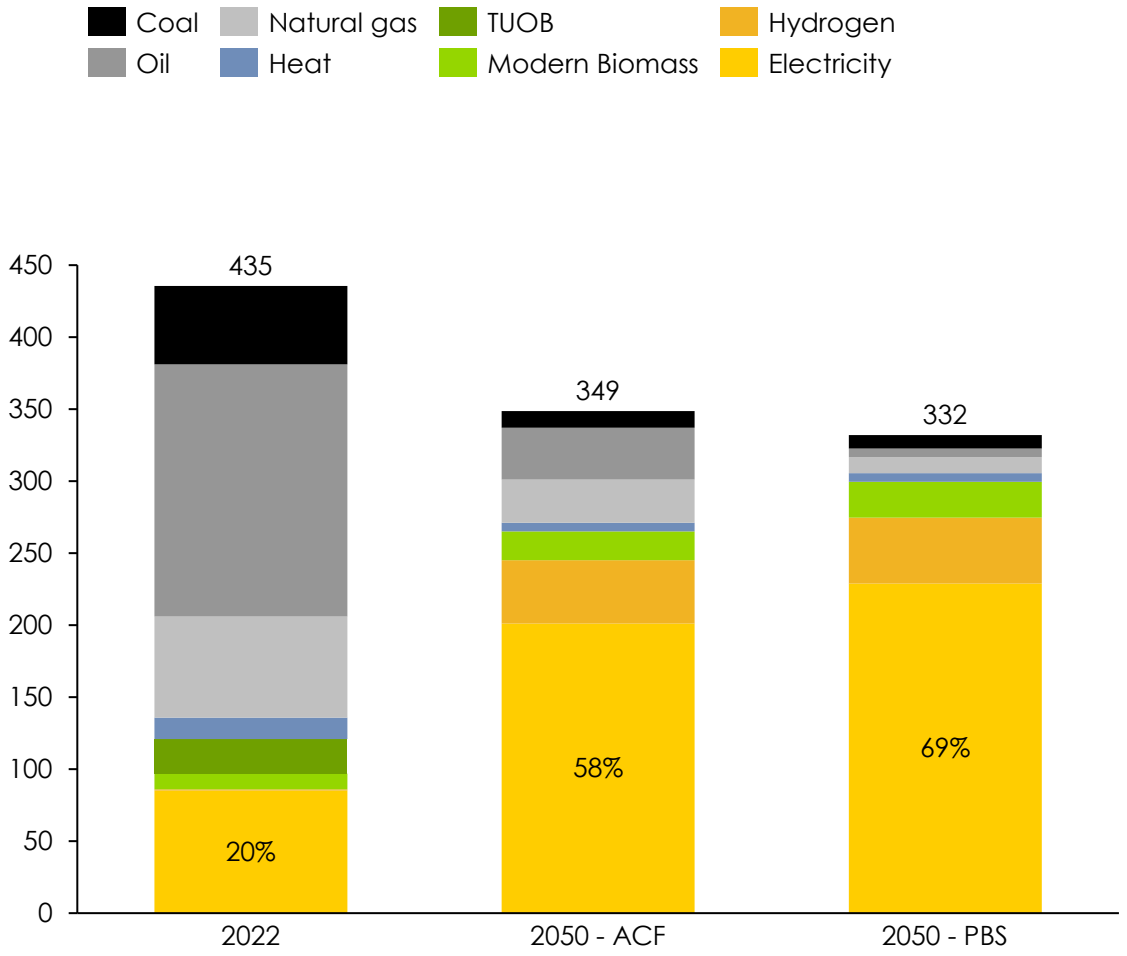
4. Power system transformation – further deep dives

- The role of nuclear in net-zero power systems
- Power Market design 2.0 – consumer pricing
- Electrifying industrial heat

Clean electrification will be the most important driver of decarbonisation…

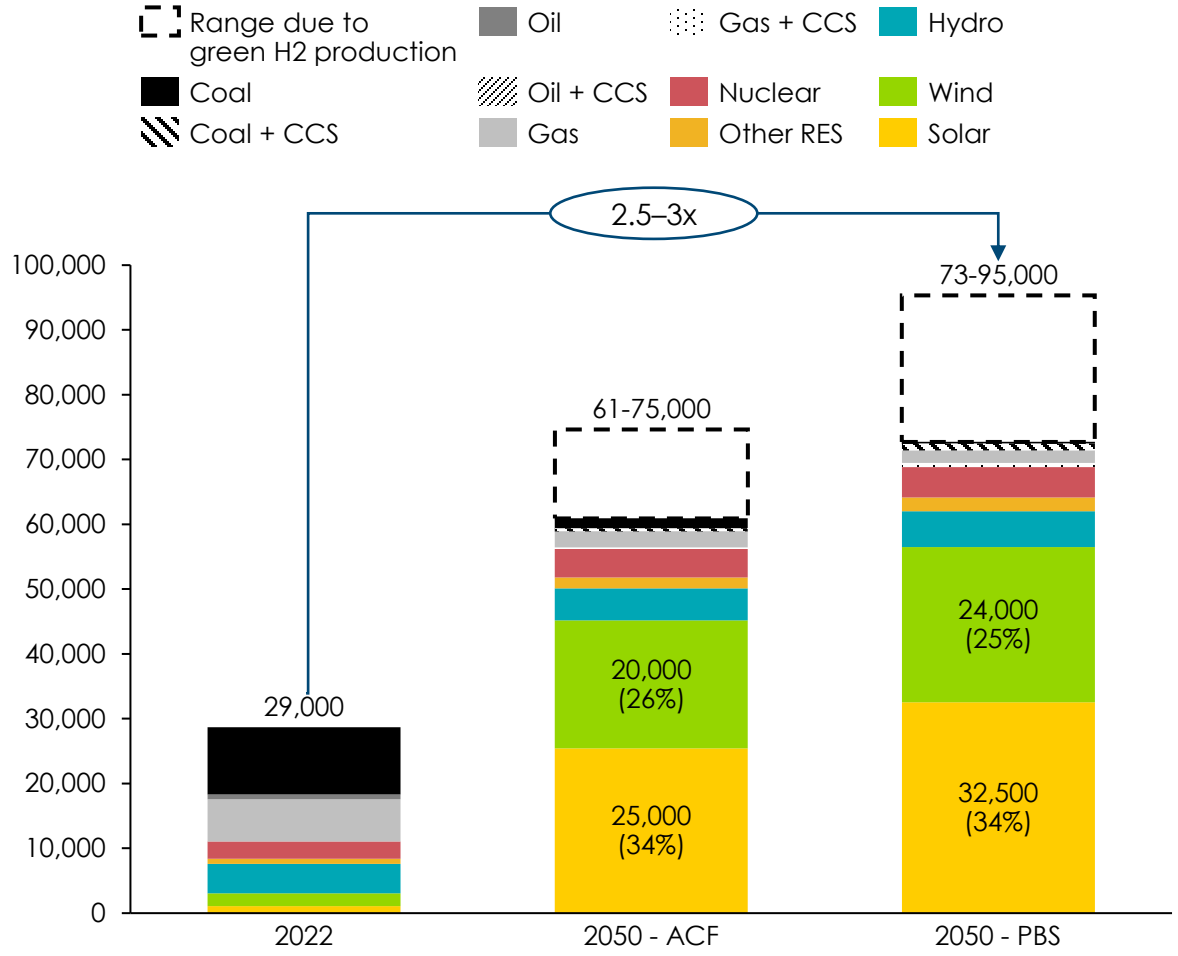
Electricity will need to go from 20% → 55-70% by 2050

Final Energy Consumption, EJ



Power generation will be dominated by wind and solar

TWh

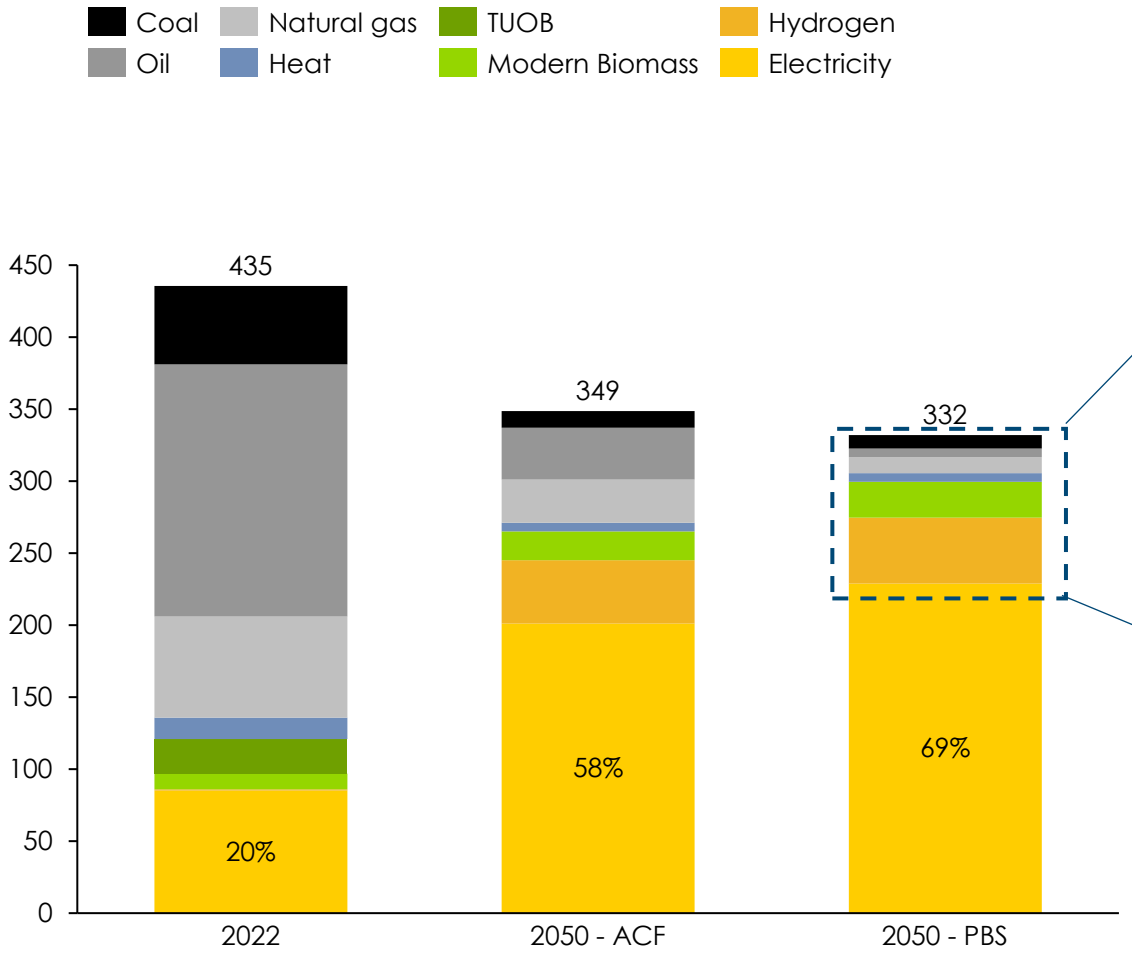


Note: ACF = Accelerated but Clearly Feasible; PBS = Possible but Stretching. Wood products and pulp and paper excluded from modern biomass
Source: ETC (2023), *Fossil fuels in transition*.

…but there will still be a significant role for molecules as energy vectors

Electricity will need to go from 20% → 55-70% by 2050

Final Energy Consumption, EJ



Role of Molecules:

- **30-45% of overall Final Energy Demand**, of which:
  - 10-15% is **hydrogen or derivatives**
  - 5-10% is **biomass-derived carbon**
  - 10-25% is **fossil carbon**

Note: ACF = Accelerated but Clearly Feasible; PBS = Possible but Stretching. Wood products and pulp and paper excluded from modern biomass
Source: ETC (2023), *Fossil fuels in transition*.

Molecules will likely be essential in aviation, chemicals, fertilisers, shipping; for other sectors electrification will likely dominate

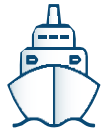
Carbon molecules

Likelihood of role	Potential Application	Current Fossil Fuel Demand[1]			Sector power demand in 2050	Share of electricity in FED in 2050
		Coal	Gas	Oil	Final and Intermediate	
Most likely role for molecules	Aviation			5.5 mb/d	5,000 TWh	
	Shipping			5 mb/d	1,000 TWh	
Some role, depending on costs vs. electrification	Plastics and Petrochemicals Fertilisers/Ammonia	230 Mtce	500 bcm	17 mb/d	2-10,000 TWh	
	Iron / Steel-making	900 Mtce	100 bcm		9,000 TWh	
	Other industry	750 Mtce	600 bcm	4 mb/d	7,000 TWh	
Minimal role – electrification wins	Power, Road Transport, Buildings	4,000 Mtce	3,000 bcm	67 mb/d	35-40,000 TWh	

[1] Demand is for direct use of fossil fuels.

Source: Systemiq analysis for the ETC; ETC (2023), *Fossil Fuels in Transition*.

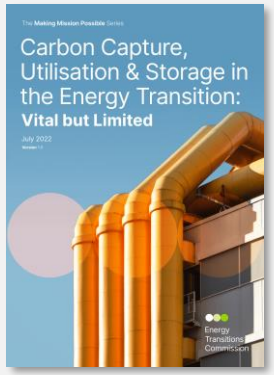
What kind of molecules, from where, is still an open question

Likelihood of role	Potential Application	Options for low-carbon molecules
Most likely role for molecules	**Aviation** 	• *Biofuels (HEFA-based or other e.g., from gasification)* • *Synthetic fuels enabled by carbon streams (likely from point-source or direct-air capture) and low-carbon hydrogen* • *Potential for continued use of fossil-based jet fuel together with carbon removals*
	Shipping 	• *Low-carbon hydrogen to make ammonia* • *Methanol – requires both low-carbon hydrogen and additional carbon atoms*
Some role, depending on costs vs. electrification	**Plastics and Petrochemicals** **Fertilisers/Ammonia** 	• *Low-carbon hydrogen in combination with…* • *… carbon atoms from multiple potential sources: bio-based and recycled feedstocks, from fossil fuels, or captured carbon*
	Iron -making 	• *Low-carbon hydrogen for use in direct reduction of iron* • *… but also multiple options for recycling of carbon and hydrogen rich off-gases* • *…and carbon capture may make iron making a source of carbon for other sectors*
	Other industry 	• *Some role for bioenergy or hydrogen in combustion for provision of mid/high-temperature heat*

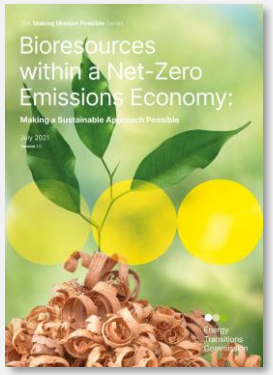
Minimal role – electrification wins	**Power, Road Transport, Buildings** 	• *Small role for molecules in:*
		  - *Storage (low-carbon hydrogen)*
		  - *Balancing (low-carbon hydrogen or bioenergy)*
		  - *Heavy-duty trucking (low-carbon hydrogen >> bioenergy)*

[1] Demand is for direct use of fossil fuels.
Source: Systemiq analysis for the ETC; ETC (2023), *Fossil Fuels in Transition*.

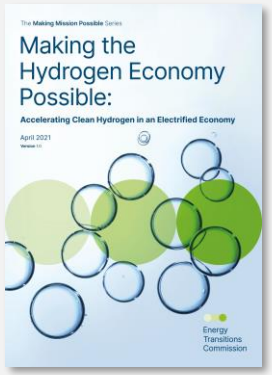
Previous ETC reports have assessed the relative role of role of CCUS, bioresources and hydrogen



- CCUS is vital but limited:
  - Where **alternatives are technically limited** (e.g., Cement process emissions)
  - To provide **least-cost decarbonisation** in key sectors and geographies where CCUS is competitive
  - To provide some **carbon removals**
- Enabling **transport & storage infrastructure** will be crucial – CCUS clusters could be important
- Most recent ETC analysis estimates **7-9 $GtCO_2$ of CCUS**, of which 4-5 $GtCO_2$ is point-source applied to fossil fuels and 3-4GT CO_2 is DAC



- Use of Bioresources faces **strong land use competition** and **sustainability constraints**
- A "prudent" estimate of sustainable biomass supply would be **40-60 EJ in 2050** – could rise up to 120 EJ in a "max. potential" scenario
  - Producing 50 EJ/yr could need **~2.8 million km² of land** (~8% of agr. land)
- Use of biomass should be **prioritized for sectors where alternatives are limited**:
  - Pulp and paper, timber
  - Plastic feedstocks
  - Aviation
  - Some high/mid-temperature heat



- **Green hydrogen** could be competitive with grey by 2030s (though latest progress slow)
- **Blue hydrogen** will also have a role – competitiveness depends strongly on cost of gas and availability of CCS
- Priority should be to **displace existing ~95 MtH_2 of grey hydrogen demand first**, then expand into wider sectors
- Enabling **transport & storage infrastructure** will be crucial
- Most recent ETC analysis estimates **350-600 MtH_2 of demand in 2050**, with greatest role in chemicals, steel, aviation and shipping

Source: ETC (2021), *Bioresources within a net-zero emissions economy*; ETC (2021), *Making the hydrogen economy possible*; ETC (2022), *Carbon capture, utilisation and storage in the energy transition*; ETC (2023), *Fossil fuels in transition*.

Carbon molecules in the zero-emission economy: proposed work programme

1. How large a role can and should direct electrification play in a zero emission economy?

- Develop an **extreme scenario** which identifies how much of the economy could **in principle be electrified** if zero carbon electricity were available at a very low cost and on the required scale
- A revised version of our **Possible but Stretching scenario** which describes the optimal role of electricity

2. The role of hydrogen and non-carbon H2 derivatives

- Develop an **updated set of scenarios for the role of hydrogen**, exploring in particular the balance between hydrogen and non-carbon H2 derivatives relative to carbon and hydrocarbon molecules in different sectors

3. The potential to recycle and reuse carbon molecules

- Developing another **extreme scenario to explore how close to total recycling** of all carbon molecules it would be possible to get, and with what implications for the primary supply of new carbon still required to support a prosperous global economy
- Produce **a range of less extreme plausible scenarios** for carbon source demands in a zero emission economy

4. Sources of primary carbon: costs and sustainability

- Assess whether there is a case for **increasing or decreasing our past estimates** of potentially sustainable bioresource supply
- **Engage with Brazil's distinctive view point** by establishing an ETI Brazil effort to assess the optimal decarbonisation path within Brazil's specific conditions

2025 analytical work-programme

1. Publishing 2024 insights (Q1 focus)

1. Managing the system balancing challenge
2. Building and optimising girds
3. The role of energy productivity across the economy

2. Carbon molecules - role of emission-free molecules and 'defossilizing' carbon

- The role of low-carbon molecules across sectors (how far power + H2 derivatives can go)
- Sourcing fossil-free carbon (recycling, DACC, bioresources)

Aiming to start in 2024 with additional philanthropic funding

3. Economic impacts of the Transition

- Investment, costs & affordability
- Implications for growth, externalities & industrial policy

4. Power system transformation – further deep dives

- The role of nuclear in net-zero power systems
- Power Market design 2.0 – consumer pricing
- Electrifying industrial heat

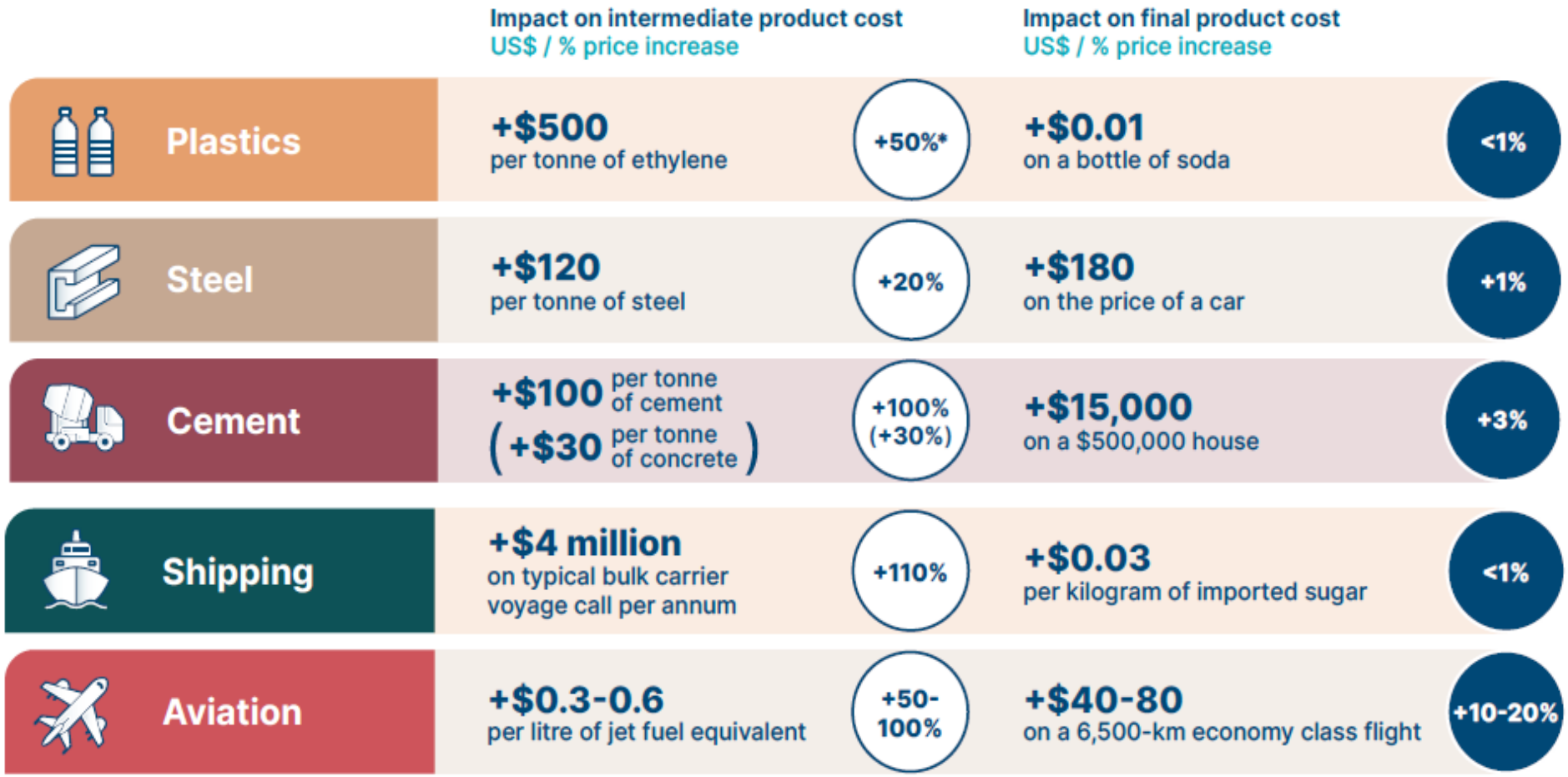
In Mission Possible and Making Mission Possible we considered the impact of the transition on consumers by sector

Incremental decarbonisation costs will reduce conventionally measured living standards attainable in 2050 by less than 1%.

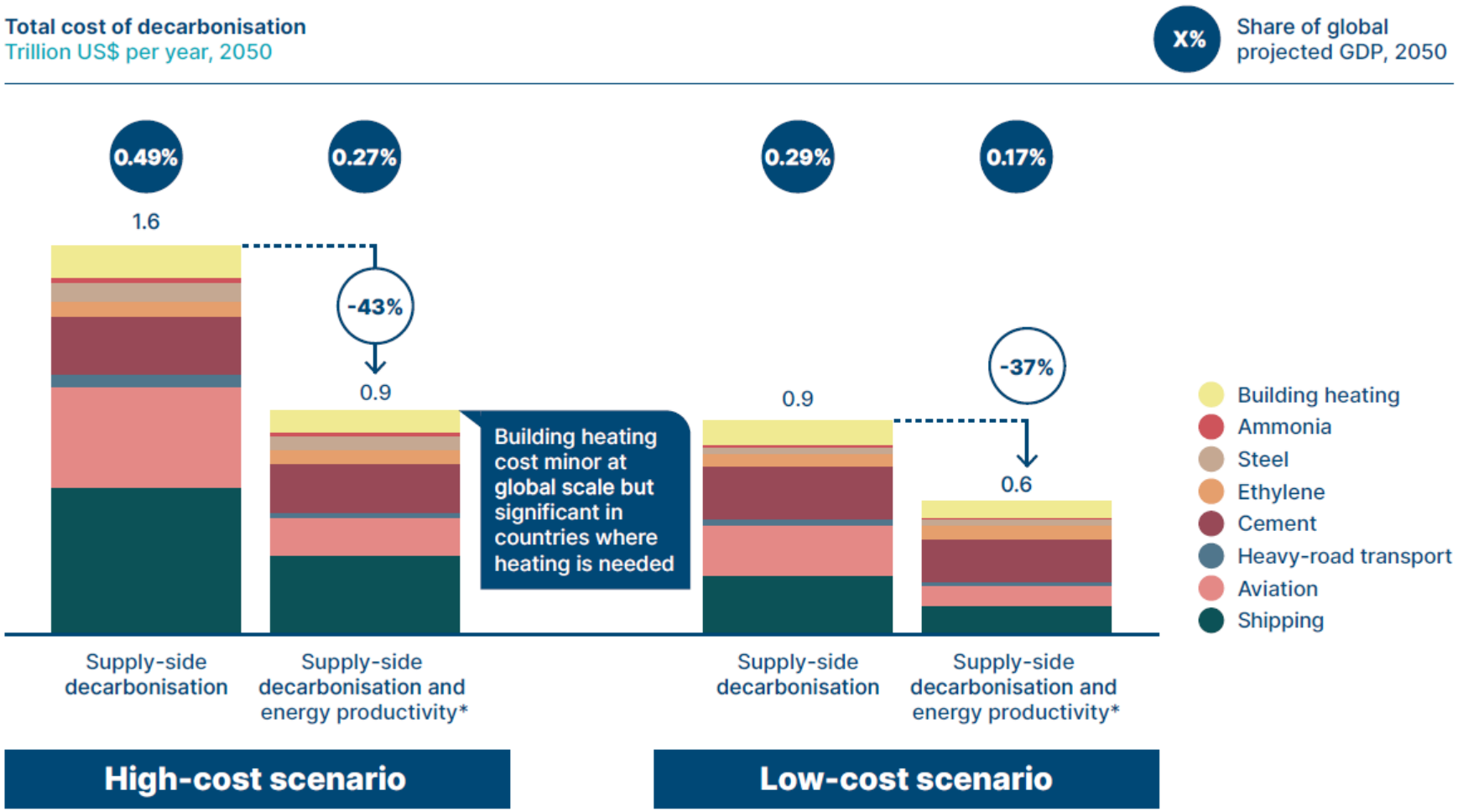
But important specific distributional effects need to be recognised:

- **Residential cooling:** negligible incremental cost, given the potential to deliver zero-carbon electricity at costs equal to or below the cost of fossil fuel-based systems and potential for further efficiency improvements.
- **Road transport:** In the long term, consumers will buy surface passenger transport services at lower cost than under a fossil fuel-based system, while road freight costs will be broadly unchanged. But the cost and feasibility of initial EV adoption will vary significantly by specific location and use patterns (e.g., urban and rural locations).
- **Residential heat:** Decarbonising residential heat could have a significant impact on living standards for specific households, unless careful redistribution policies are put in place. Poorer households in insufficiently insulated buildings will bear larger energy bill increases than richer households with better-insulated homes.
- **Multiple sectors with negligible impact:** healthcare and education, consumer electronics and mobile phones, telecom services, entertainment and other Internet services, clothing, restaurant meals and hotel stays will be immaterial.
- **Industrial sectors:** For heavy industry sectors, consumer incremental costs will be very small. This is because intermediate products account for only a small proportion of the cost of the final goods or services.
- **Long-distance aviation:** Decarbonising long-distance aviation will probably require a significant increase in ticket prices versus business as usual. The size of this impact will depend on future trends in the cost of producing sustainable aviation fuels from bio or synthetic feedstocks, which are inherently uncertain.

… Including in industrial sectors, international shipping and long distance aviation



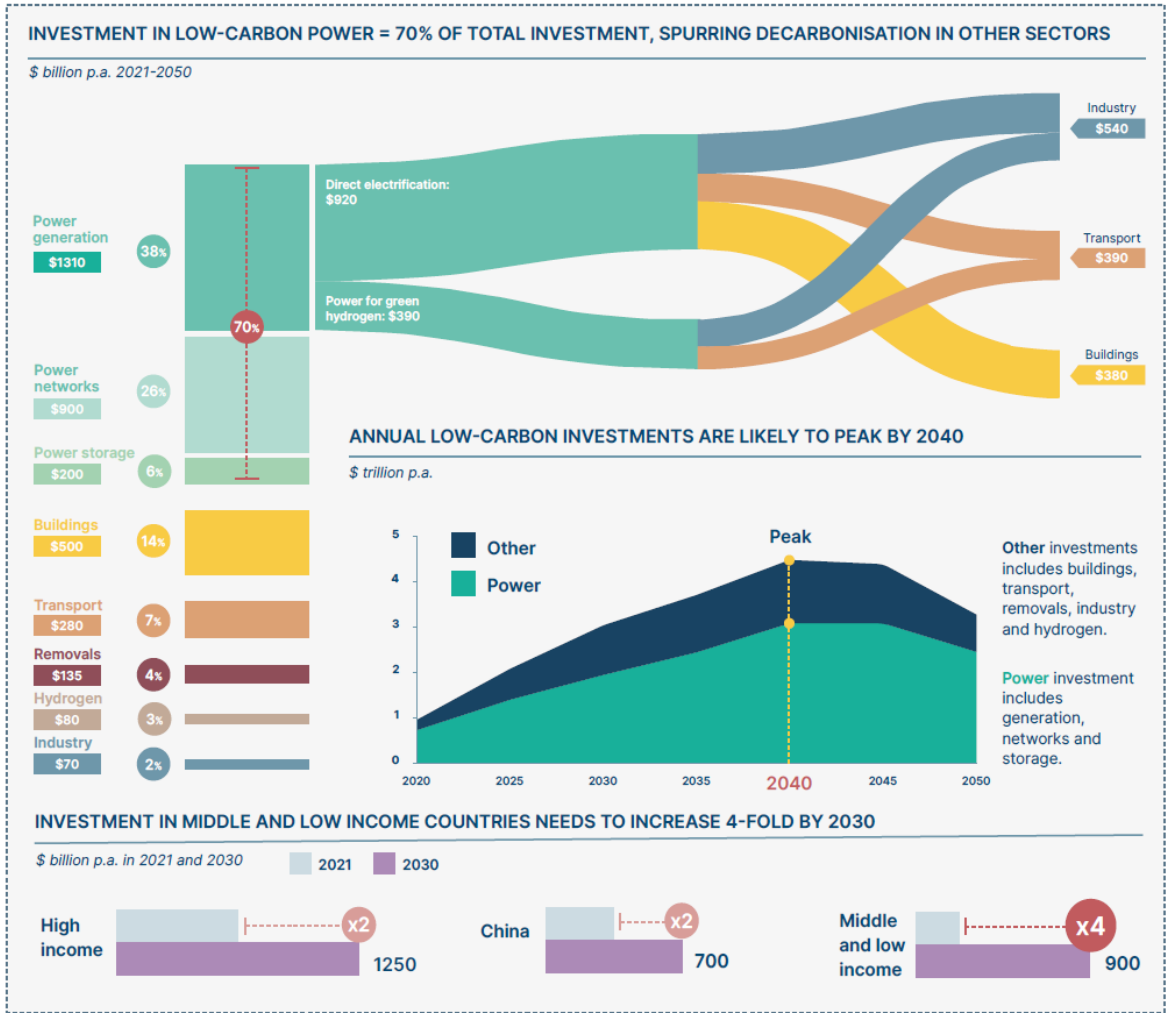
And consider total impact of the transition on overall consumer living standards in 2050…

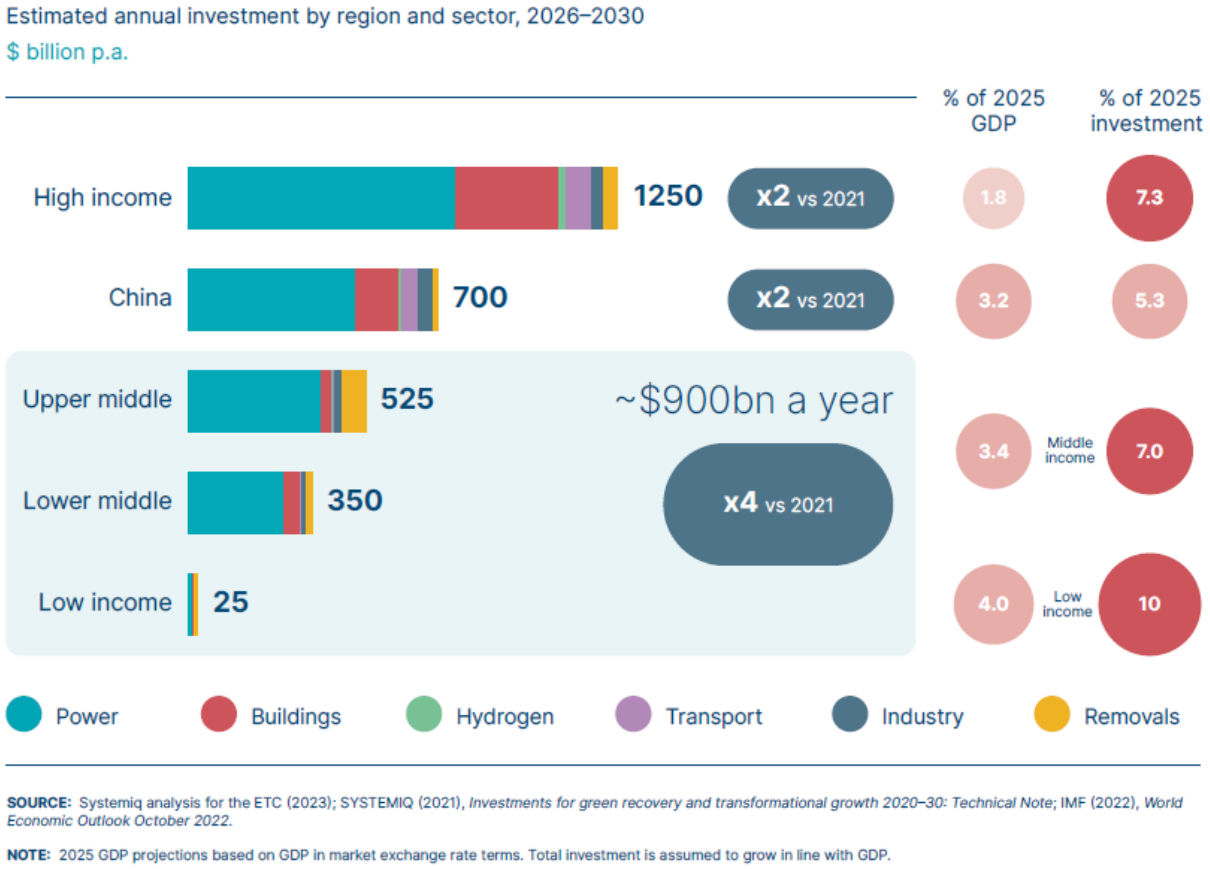


NOTE: The term "energy productivity" covers energy efficiency, material efficiency and service efficiency.

SOURCE: SYSTEMIQ analysis for the Energy Transitions Commission (2020) based on McKinsey & Company (2018), *Decarbonization of industrial sectors: the next frontier* and Material Economics analysis for the Energy Transitions Commission (2018)

Last year we published our *Financing the Transtion* report which focused on total investment needs…





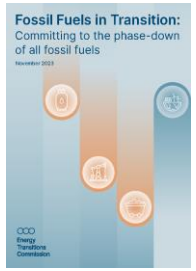
SOURCE: Systemiq analysis for the ETC (2023); SYSTEMIQ (2021), *Investments for green recovery and transformational growth 2020–30: Technical Note*; IMF (2022), *World Economic Outlook October 2022.*

NOTE: 2025 GDP projections based on GDP in market exchange rate terms. Total investment is assumed to grow in line with GDP.

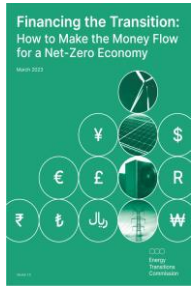
Given increasing politization of net-zero, focus on the economic impacts of the transition (both costs & benefits) – on individuals, sectors & nations

Leveraging our previous insights…

Presents an **assessment of the impact of the energy transition on consumer living standards**, drawing on our then-current assessment of technology costs and investment needs



Describes technically feasible pathways to a zero-carbon economy by mid-century and has considered the **relative economics of different technology options**



Estimates **the total investment needs** for the energy transition, by region and sector

… we propose to conduct an integrated assessment of the impact of the energy transition on economic growth, investment requirements and the implications for consumer living standards, including

- **An assessment of how the impact might vary by countries/regions at different stages of economic growth**
- **How it might vary by different income levels within countries**
- **Essential to engage effectively in increasingly polarised debates about the economic costs of the energy transition and the need for a "just transition"**

Current hypothesis:

- **We previously thought an ~80% reduction in emissions might have a ~1% impact on GDP. Now we think 100% might have low - or possibly no – impact.**
- **But that does not mean transition is costless – cost is need to invest, which likely means less consumption or investment in other sectors of economy.**

2025 analytical work-programme

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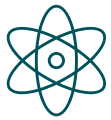
Power system transformation – rounding out critical issues & barriers to clean electrification

Economic impacts of the transition

Consumer power market design

Residential and commercial consumers should benefit from the high price certainty and low costs of renewable generation in a renewable-dominated power system

- Increase transition fairness and consumer buy-in
- Move away from gas setting the price for the whole market



Role of nuclear

Nuclear energy will continue to be an important technology during the energy transition, potentially making up ~c.5-10% of electricity supply in 2050

- Revisit question of nuclear generation in a variable renewable dominated system – including costs, ability to run flexibly, and latest view on innovation
- Consider embodied carbon, water usage and waste disposal

Electrifying industrial heat

There is a growing consensus that much more industrial heat can be electrified than previously thought

- Both the 45% of industrial heat demand that is below 200°C but also potentially very high-temperature heat
- This reflects the falling cost of renewables, developments in heat pump and other technologies to reach higher temperatures

Key outputs

- A summary of current power market design across countries
- **Assessment of options** for to adapt power market design

- Latest **technology perspectives**
- **Resource needs** (i.e. materials, fuels, water impact, etc.)
- **Risks and local environmental impacts**

- Outlining the **options** for decarbonising industrial heat
- The **interventions required** to address barriers to implementation

ETC analytical programme

Are these still the right areas?

Are there others we should be considering?

Last year we proposed a two year work-programme

1 Extending our influence in the global climate debate

Analytical programme

2 Extending our influence in the global climate debate

Communications programme

3 Building the ETC regional network

Regional programme

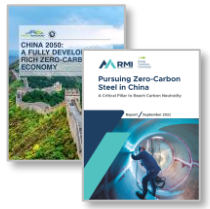
4 Delivering action through future COPs

5 Supporting the MPP

MISSION POSSIBLE PARTNERSHIP

6 Supporting the ETC members

Consolidating the ETC's growing regional network

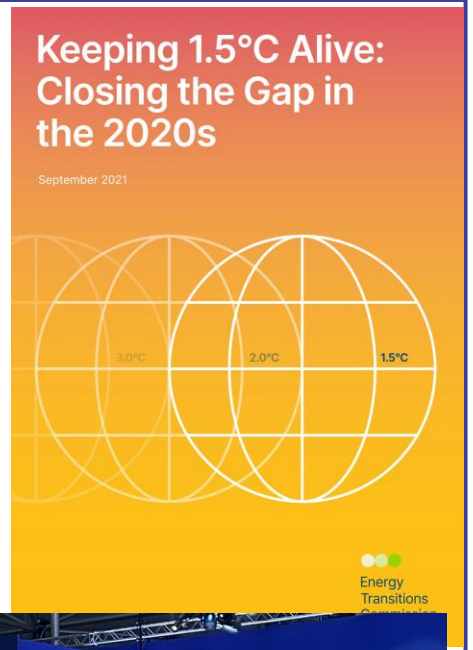
	2017	2018	2018	2019	2020	2021	2021	2022	2023	2024
Est.										
Knowledge Partner(s)	teri, RMI	Energy Foundation 能源基金会, RMI	SYSTEMIQ, European Climate Foundation	Mission Possible Partnership, Climateworks Centre	Duke Nicholas Institute for Energy, Environment & Sustainability, World Resources Institute, RMI	The Transition Accelerator	東京大学未来ビジョン研究センター Institute for Future Initiatives The University of Tokyo	World Resources Institute	IESR Institute for Essential Services Reform	SYSTEMIQ
Initiative	Energy Transitions India		Energy Transitions Commission	Australian Industry Energy Transitions Initiative	Energy Pathways USA	Electrifying Canada	Center for Global Commons	African Energy Dialogues	Potential for larger ASEAN initiative in 2025	
Insights									In-progress	In-progress

Our engagement with the COP process has grown over the past 5 years

2021

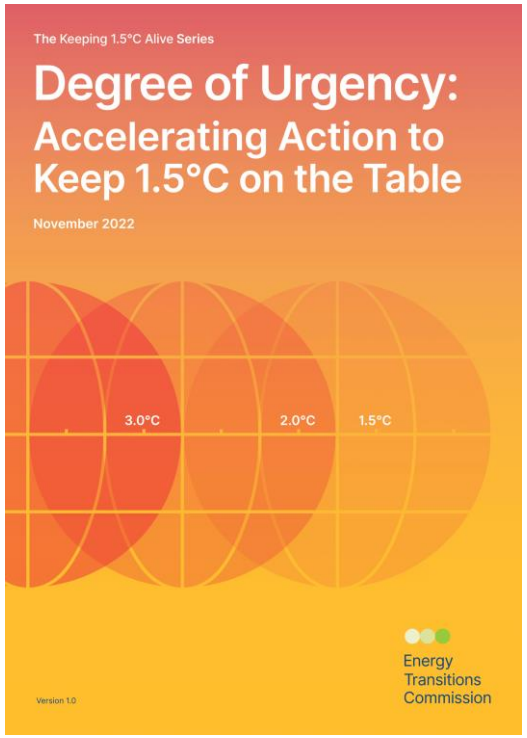
UN CLIMATE CHANGE CONFERENCE UK 2021

IN PARTNERSHIP WITH ITALY



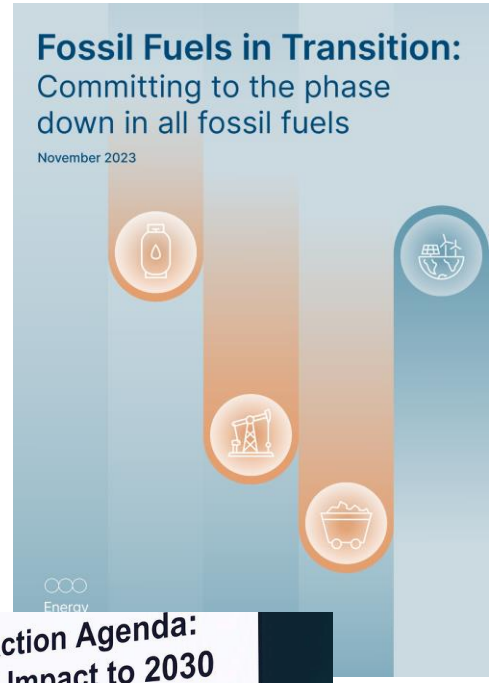
2022

COP27 SHARM EL-SHEIKH EGYPT 2022



2023

COP28 UAE



COP29, 30 & 31: 4 priorities to deliver action through future COPs

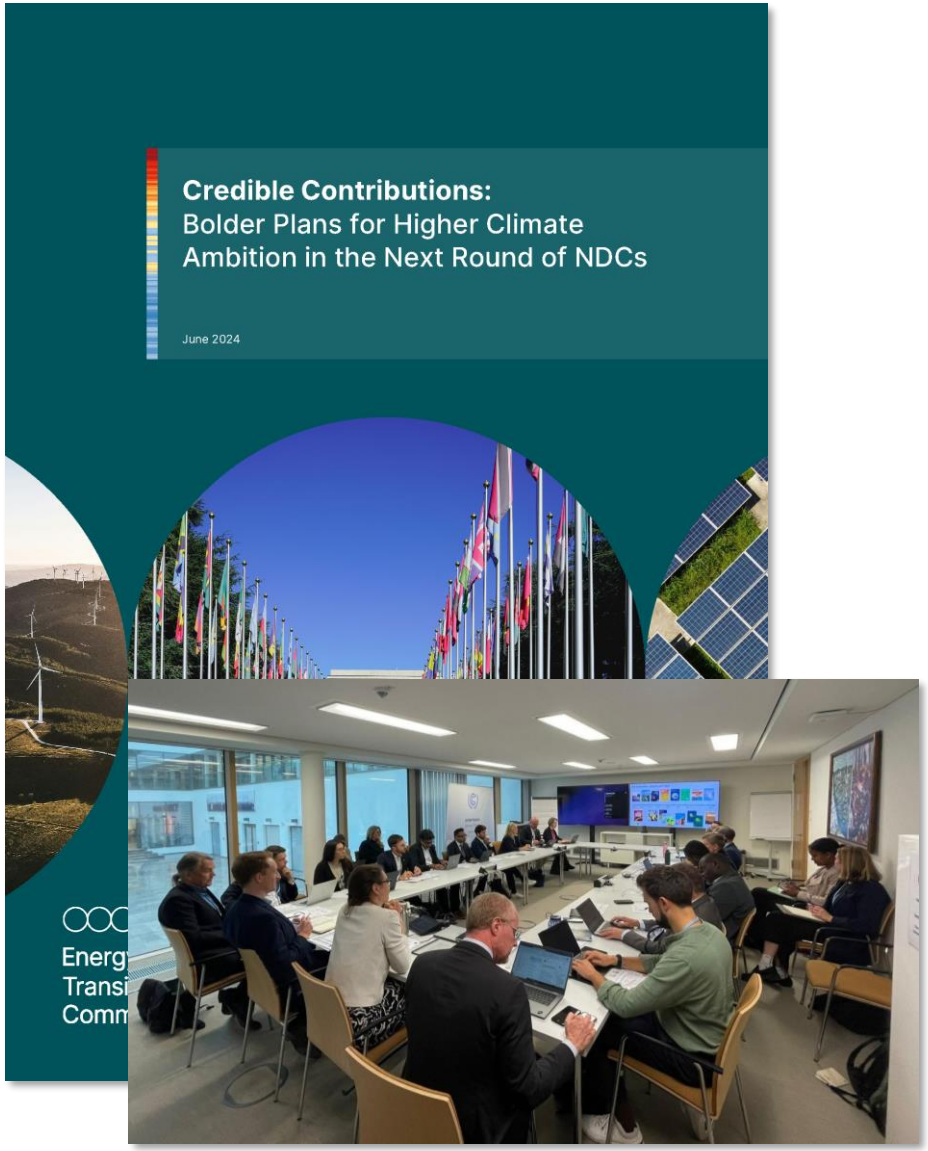
Delivering and increasing the COP28 commitments to triple RE capacity by 2030 informed by work on barriers to clean electrification

Further progressing the global debate about moving beyond fossil fuels, seeking to gain increasingly strong and specific commitments to the rapid phase-down

Supporting the work of the ITA, which is envisaged as a multi-COP initiative. Driven by MPP but with the ETC focused on identifying, and driving action on, implications for the wider energy transition (e.g., the scale of clean electricity or H_2)

Developing more ambitious and comparable NDCs in the next NDC ratchet – ensuring they reflect commitments made at COP26 and COP28, real economy action, and latest technological progress.

From Bonn to Belem NDC Insights Brief Comms Campaign



The objective is to reach target audiences including:

- Government officials and senior policymakers, directly involved in the NDC-setting process.
- Non-state actors (NSAs) and advisers to NDC-setting policymakers.
- Industry (core ETC members and audience)

Collaborating with comms partners to maximise opportunities at key events

- Tap into engagement opportunities at key climate events (Bonn, LCAW, NYCW, COP29) with the NDCs Partnership, UNFCCC, WBCSD.
- Partner with Global Optimism to convene a workshop at Bonn and LCAW
- Follow up events (LCAW, NYCW and COP29) with member support

Amplifying and building momentum

- Pre-brief business stakeholders, non-state actors, and policymakers.
- Media launch June 2024 at the end of Bonn Climate Change Conference. Targeting international broadcast media.
- Keep beating the drum at New York Climate Week, COP29 and all the way through to COP30.

Proposed focus for COPs 29, 30 & 31

COP29 Baku Azerbaijan

COP30

COP31 Australian Industry Energy Transitions Initiative

Partners:

SYSTEMIQ

iCS instituto CLIMA e SOCIEDADE

transição energética

MISSION POSSIBLE PARTNERSHIP

Main area of focus:

- Accelerating **rapid phase-down of fossil fuel** production and use, extending work at COP26 & COP28
- **Financing the transition** & placing the New Collective Quantified Goal ("NCQG") in context
- Exploring the opportunity of **interconnectors**

- Establish "ETI Brazil" programme to build partnerships and potentially impact the **system-wide vision for a Net-Zero Brazil**
- **Convene cross-sectoral working group** of stakeholders within Brazil to debate decarbonization pathway options and the impact on land use and resulting energy supply
- Position Brazil with the **global context** to understand the **opportunity to become a green supply chain leader**

- To accelerate successful delivery of **low-carbon industrial hubs** to provide a template for climate leadership to be replicated globally
- Major focus on **low-carbon power systems** in SEA, and **accelerating coal phase out**

Last year we proposed a two year work-programme

1 Extending our influence in the global climate debate

Analytical programme

2 Extending our influence in the global climate debate

Communications programme

3 Building the ETC regional network

Regional programme

4 Delivering action through future COPs

5 Supporting the MPP

MISSION POSSIBLE PARTNERSHIP

6 Supporting the ETC members

ETC Communications 2-year Programme:

Pillar 1

Disseminating ETC reports

- **Broaden media presence:** focus on Tier 1 media and non-English international media.
- **Explainer content:** concise, informative, digital friendly.
- **Social media campaigns.**
- **Events:** increased presence in key sectoral and regional events.
- **Direct engagements:** structured and targeted outreach.
- **ETC Matters Newsletter:** valuable mailing list incl. journalists, climate activists, policymakers.

Pillar 2

Repackaging existing insights

- **To inform and explain:** dispelling myths, correcting misinformation, and explaining and re-explaining complex ideas.
- **Shorter, more digestible forms** (e.g., videos, social media posts, blogs)
- **Informing the debate** via timely op-eds and articles on international media platforms.
- **Spreading the word** at key climate events (e.g. New York Climate Week, Clean Energy Ministerial, COP).

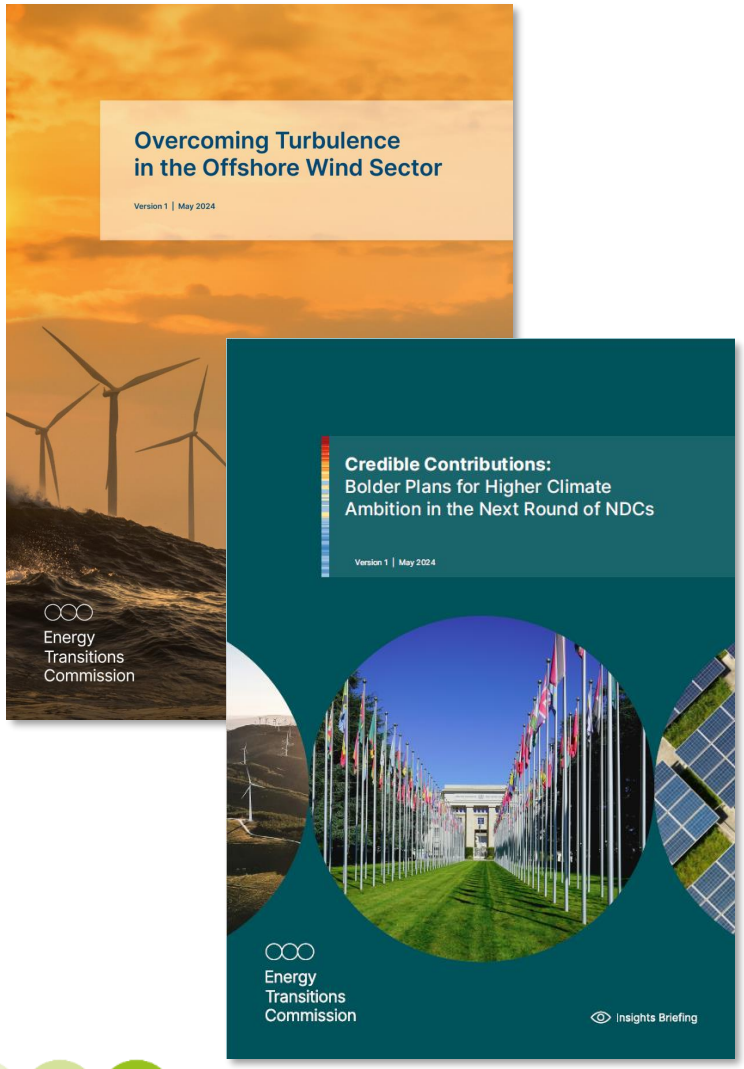
Pillar 3

Informing the influencers and reaching new audiences

- Developing **broadcast opportunities.**
- Expanding **digital storytelling** (TED Talks, Talking heads videos)
- Leveraging **social media network.**
- **Audience specific** tailored content.
- Collaboration with **other communications partners** (e.g, Global Optimism, GSCC).
- Test **direct outreach** with high impact interest groups (NGO groups, University programmes).

Towards COP29 & COP30

Offshore wind and NDCs campaign continue – member support to amplify



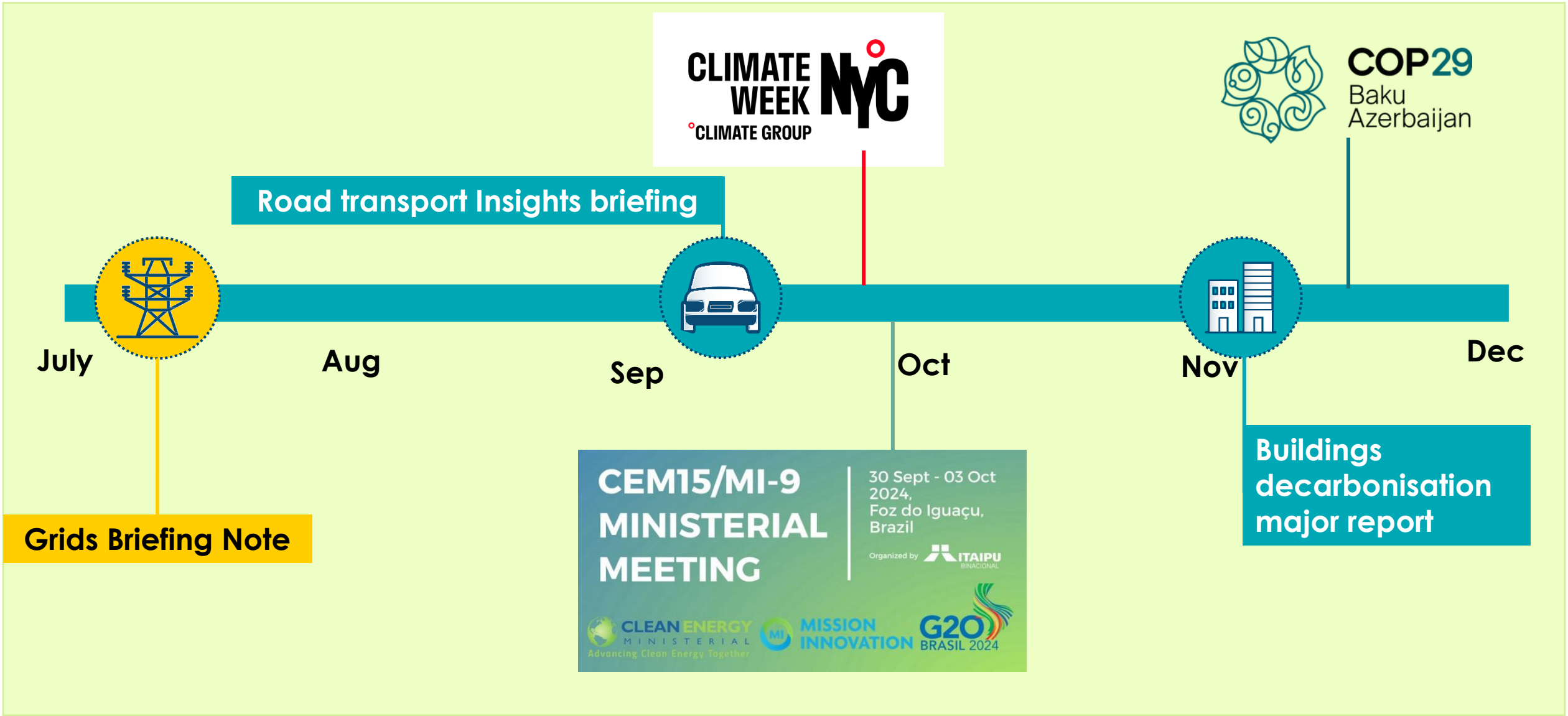
Engage with local events and media

- **Use ETC speaking-notes** at industry events.
- Take key messages to **national broadcast and print media** in local languages.

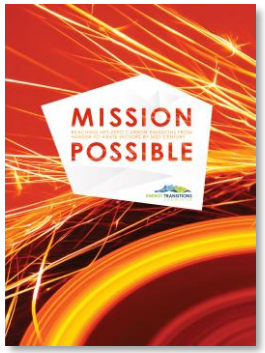
Connect ETC with policymakers and industry groups

- **ETC spokespersons can support members** at industry events.
- Connect ETC analytical team **with relevant national policymakers or industry groups.**
- The ETC team is available to **conduct policy roundtables & briefings** based on member interest.

What is coming up later this year

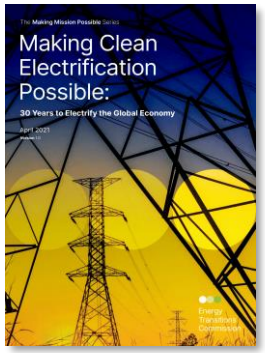


Pillar 2: Rich back catalogue of content to re-package

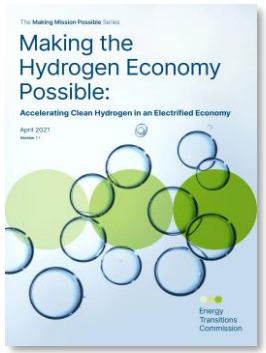


172 pages
+ 38-page executive summary

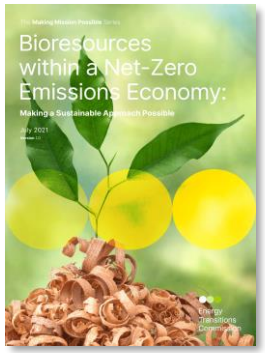
89 pages
+ 31-page executive summary



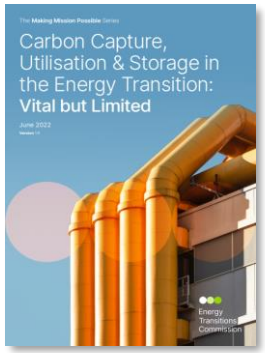
108 pages
+ 36-page executive summary



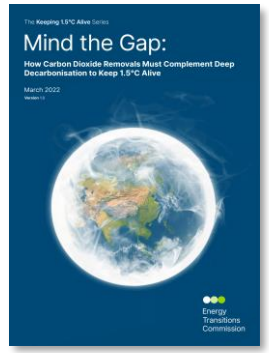
92 pages
+ 30-page executive summary



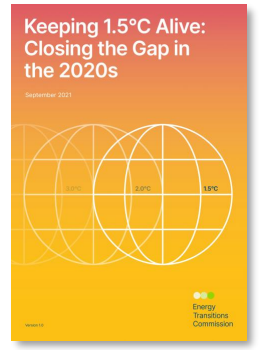
116 pages
+ 30-page executive summary



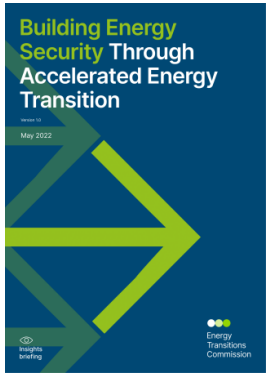
120 pages
+ 40-page executive summary



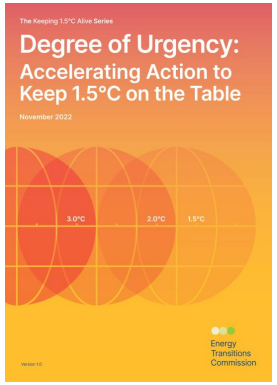
100 pages
+ 36-page executive summary



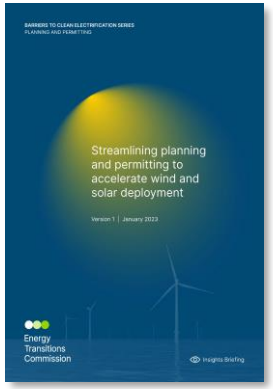
64 pages
+ 14-page executive summary



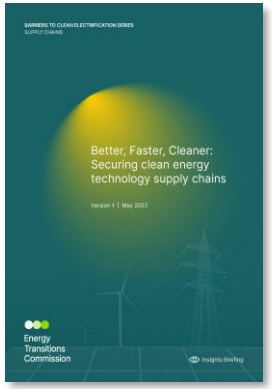
32 pages



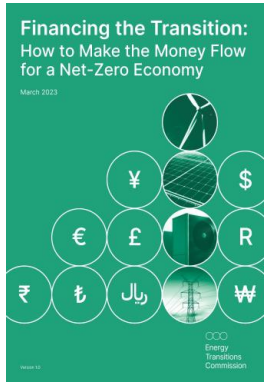
43 pages



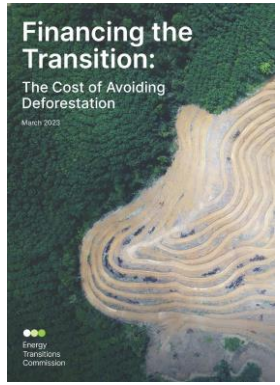
35 pages
+ 3 toolkits (5-20 pages each)



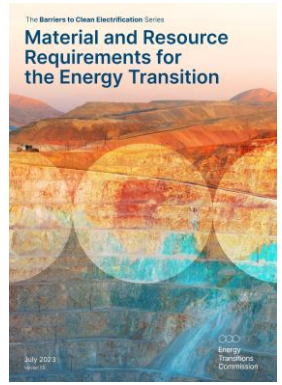
51 pages
+ 22-page toolkit



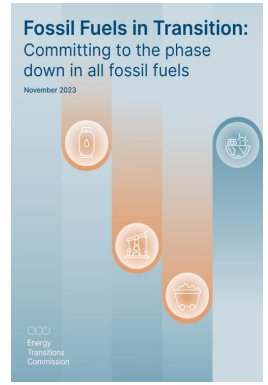
101 pages
+ 29-page executive summary



26 pages

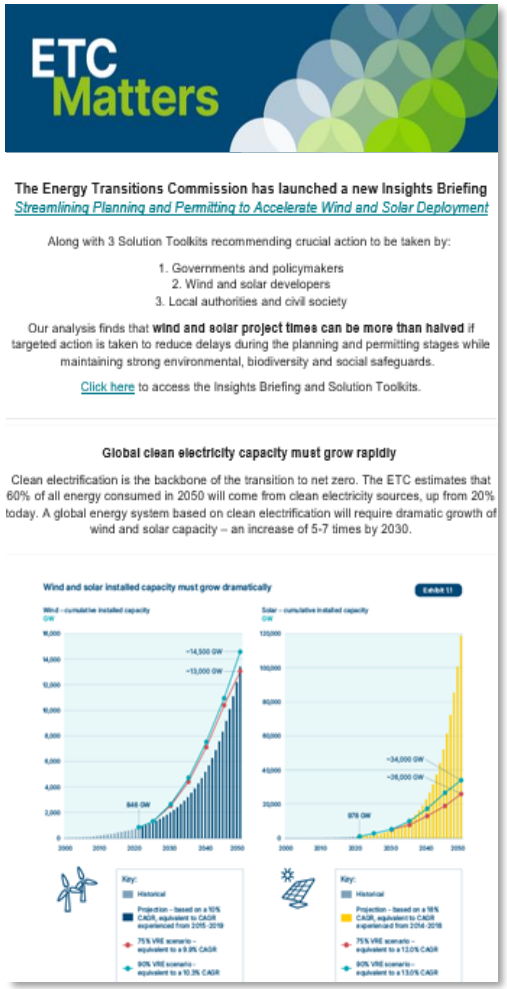


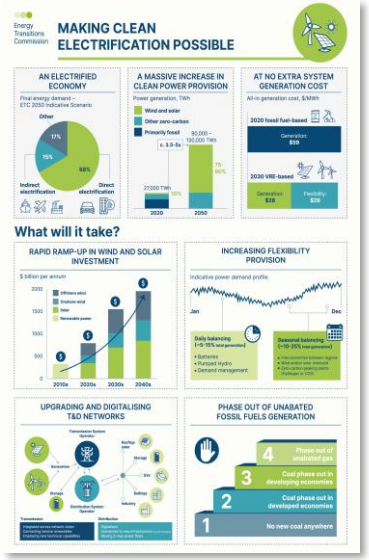
130 pages
+ 24-page executive summary

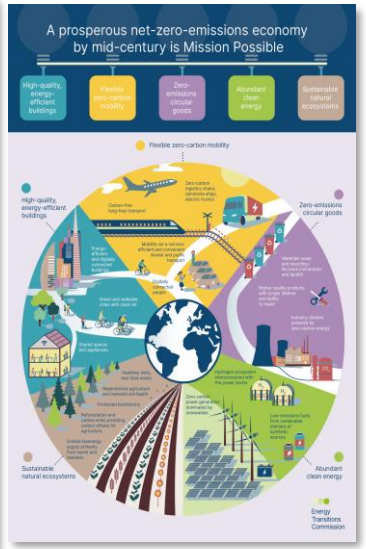


160 pages
+ 28-page executive summary

Pillar 2: We are already doing this … and have started to go further



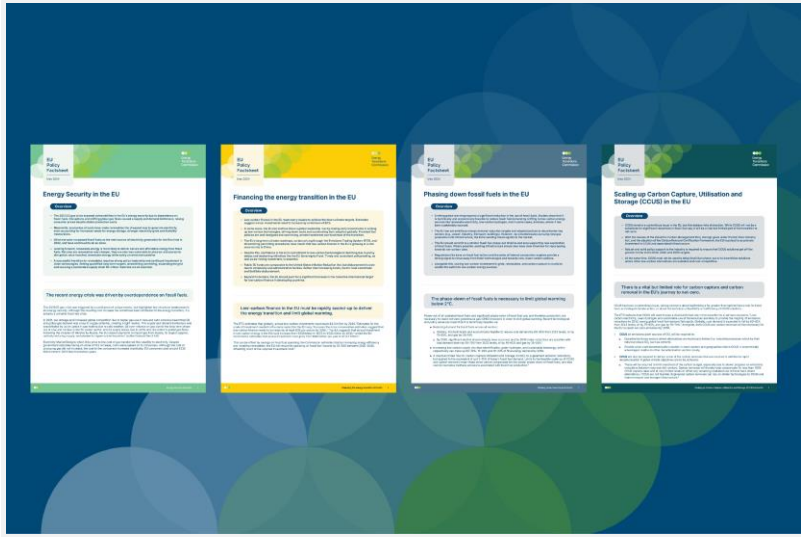




- **Fill the need for strong evidence-based storytelling** in current political and social climate
- **Utilise ETC's position to inform, explain, and dispel myths and misinformation**
- **Share analysis in shorter, more digestible formats** to extend its reach
- **Answer pertinent questions** in the ongoing climate debate

Priority topics for second half of 2024

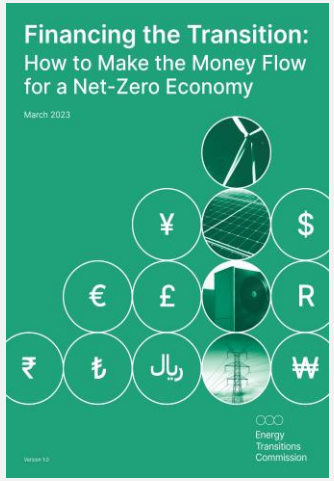
Post- EU election campaign, further emphasis Energy Security



Post-EU elections, the EU factsheets will remain **available to members, support ETC's expanding network of ambassadors, used in a social media campaign, and for EU media briefings.**

euronews. EURACTIV POLITICO

Financing the Transition, a key topic in the global debate through to COP29



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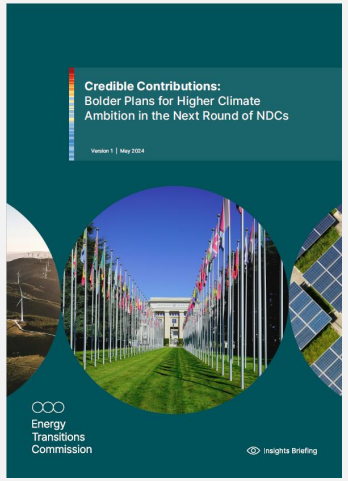


+ NCQG

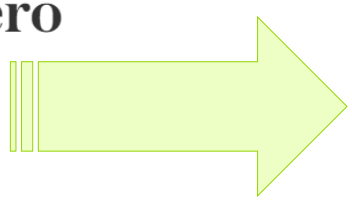
- New Collective Quantified Goal (NCQG) deliberations will conclude at COP29, but negotiations are fraught – high risk of perceptions of 'failure' at COP29
- Key messages from the ETC's Financing the Transition report and NDCs briefing can support the ongoing work to develop the NCQG
- Aim to repackage the finance story
  - Push out via **media briefings, social media engagement, partner briefings and amplification, events (e.g., NYCW and COP29)**
  - Exploring developing **a short 4-6 page briefing to put out in the autumn**, to use as a comms vehicle for the above and **get it into the hands of comms partners (e.g., GSCC and ECIU)**

Pillar 3: Tailoring the message to the audience

	Traditional	Unaware	Unconvinced
Who?	**Key players in the transition journey.** The 'movers and shifters' of energy and economic decisions needed to unlock the transition.	Those who have **not engaged with the transition debate or lack the understanding of solutions** and impact on their work, lives, and environment.	**Individuals who have not bought in to the transition potential.** But can be convinced
How?	• Providing the **evidence-backed analysis** to show the **transition is possible.** • This is **what needs to happen in the 2030s and 2040s** to achieve it.	• **Simplifying arguments with practical/tangible solutions** to show the transition is possible. • **Painting a picture** to boil down the complex arguments & analysis into stories that resonate.	• **Focusing on the economic story:** growth potential of and affordability of the transition. • **Still presenting the evidence** that the transition is possible.

Heat pumps too expensive to meet net zero target

Steel workers facing job losses under net zero plan



"How much money and energy can heat pumps save you in winter"

"Green steel means growth and opportunity for the future of the industry"

Pillar 3: In-direct engagement – 'Informing the influencers'

Traditional | **Unaware** | **Unconvinced**

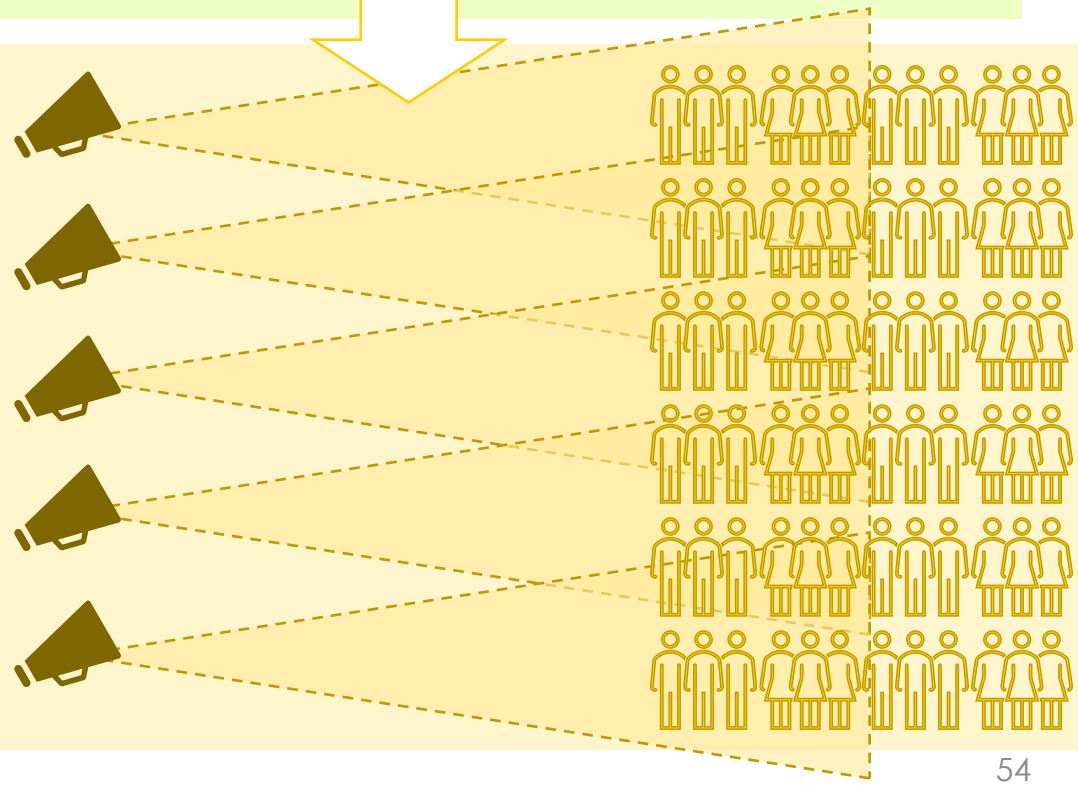
Direct - informing the debate

In-direct – via partners and interest groups to reach a broader audience

Targeting those who speak directly to the unaware & unconvinced… five channels

Energy Transitions Commission

- A **Traditional media**
- B **Broadcast and video storytelling**
- C **Social media**
- D **Communications partners**
- E **via interest groups**



Expanding our Audience & Targeting Beyond the Climate Bubble

Informing those who speak directly to the unaware & unconvinced…

	Traditional Media	Broadcast & video storytelling	Social media	Communications Partners	Special Interest groups
Who we will target	• International outlets, **beyond climate & energy** correspondents	• Climate focused **production companies** • **Podcast** producers	• **Energy influencers** • Non-expert influencers who can have impact	• Climate partners with a **broader audience**	• **Professional, Academic and NGO groups.**
How will we target them	• Background **briefings** • **Answer questions.** • **Explainer content** (guides)	• **Data storytelling** – e.g., media briefing pack and videos • **Spokespeople** • **Direct outreach** • **Partner relationships**	• **Short-form** content • **Data stories** • **Partner with influencer agencies/experts** • **Social listening**	• **Early engagement** with content & message testing • Collaboration at **key events and with their campaigns.**	• **Identify & test** proposition with 3 groups (2024) **Tailored** content – guides to energy transition

Already achieved

CHINA DAILY

THE TIMES

THE GLOBE AND MAIL

amazon prime video

TRT

GLOBAL OPTIMISM

Energy&Climate INTELLIGENCE UNIT

GLOBAL STRATEGIC COMMUNICATIONS COUNCIL

wbcsd

FairCharge

GIIA Global Infrastructure Investor Association

Next 6 months: Broadening our reach via amplifiers and multipliers

Traditional Media

- Re-package & re-use content to tell energy transition story
- Background briefings beyond energy & climate
- Target international media for report amplification
- Target priorities:

THE WALL STREET JOURNAL.

The Telegraph

GLOBO

Storytelling through broadcast & podcasts

- International broadcast campaign NDCs/COP29
- Podcast and data/video storytelling focus

ALJAZEERA

FRANCE 24

Social media

- Summer campaign to key influencers, including Matt Levine, Robert Colville

Bloomberg Opinion
Money Stuff

Matt Levine

Centre for Policy Studies

CAPX

Communications Partners

- Mission 2025 NDC campaign
- Work with GSCC network on finance repackaging

GLOBAL OPTIMISM

Energy&Climate INTELLIGENCE UNIT

GLOBAL STRATEGIC COMMUNICATIONS COUNCIL

Special "Interest groups"

- Executive education: Pilot project with Sustainability Unlocked
- Engagement with faith groups on NDCs

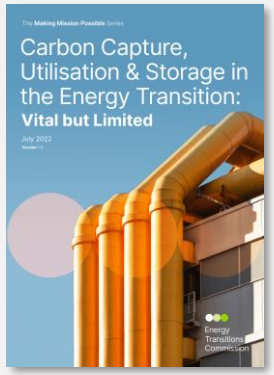
sustainability unlocked

UNIVERSITY OF CAMBRIDGE
INSTITUTE FOR SUSTAINABILITY LEADERSHIP

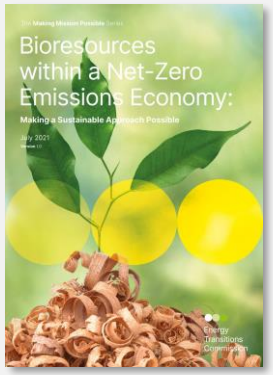
christian aid

Backup
Carbon molecules deepdive

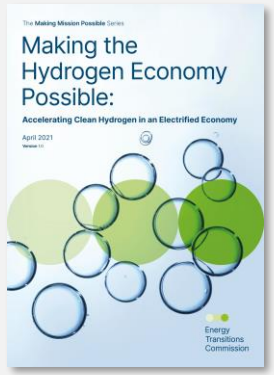
Previous ETC reports have assessed the relative role of role of CCUS, bioresources and hydrogen



- CCUS is vital:
  - Where **alternatives are technically limited** (e.g., Cement process emissions)
  - To provide **least-cost decarbonisation** in key sectors and geographies where CCUS is competitive
  - To provide some **carbon removals**
- Enabling **transport & storage infrastructure** will be crucial – CCUS clusters could be important
- Most recent ETC analysis estimates **7-9 $GtCO_2$ of CCUS**, of which 4-5 $GtCO_2$ is point-source applied to fossil fuels and 3-4GT CO_2 is DAC



- Use of Bioresources faces **strong land use competition** and **sustainability constraints**
- A "prudent" estimate of sustainable biomass supply would be **40-60 EJ in 2050** – could rise up to 120 EJ in a "max. potential" scenario
  - Producing 50 EJ/yr could need **~2.8 million km² of land** (~8% of agr. land)
- Use of biomass should be **prioritized for sectors where alternatives are limited**:
  - Pulp and paper, timber
  - Plastic feedstocks
  - Aviation
  - Some high/mid-temperature heat



- **Green hydrogen** could be competitive with grey by 2030s (though latest progress slow)
- **Blue hydrogen** will also have a role – competitiveness depends strongly on cost of gas and availability of CCS
- Priority should be to **displace existing ~95 MtH_2 of grey hydrogen demand first**, then expand into wider sectors
- Enabling **transport & storage infrastructure** will be crucial
- Most recent ETC analysis estimates **350-600 MtH_2 of demand in 2050**, with greatest role in chemicals, steel, aviation and shipping

Source: ETC (2021), *Bioresources within a net-zero emissions economy*; ETC (2021), *Making the hydrogen economy possible*; ETC (2022), *Carbon capture, utilisation and storage in the energy transition*; ETC (2023), *Fossil fuels in transition*.

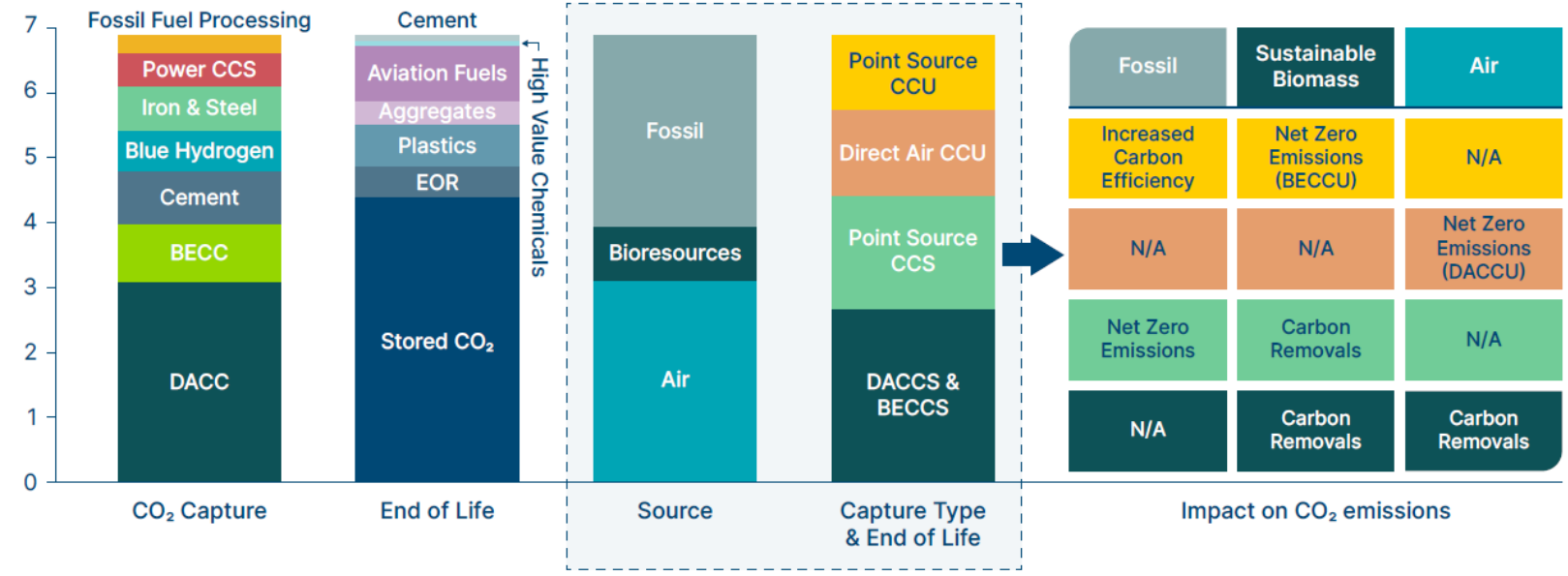
CCUS will likely entail a complex combination of sources, storage and uses gigatonne-scale

Carbon molecules

Future CO_2 demand: 2-3 $GtCO_2$ of utilization, 4-5 $GtCO_2$ of storage

Varying combinations of CO_2 capture and end of life imply different impacts on CO_2 emissions

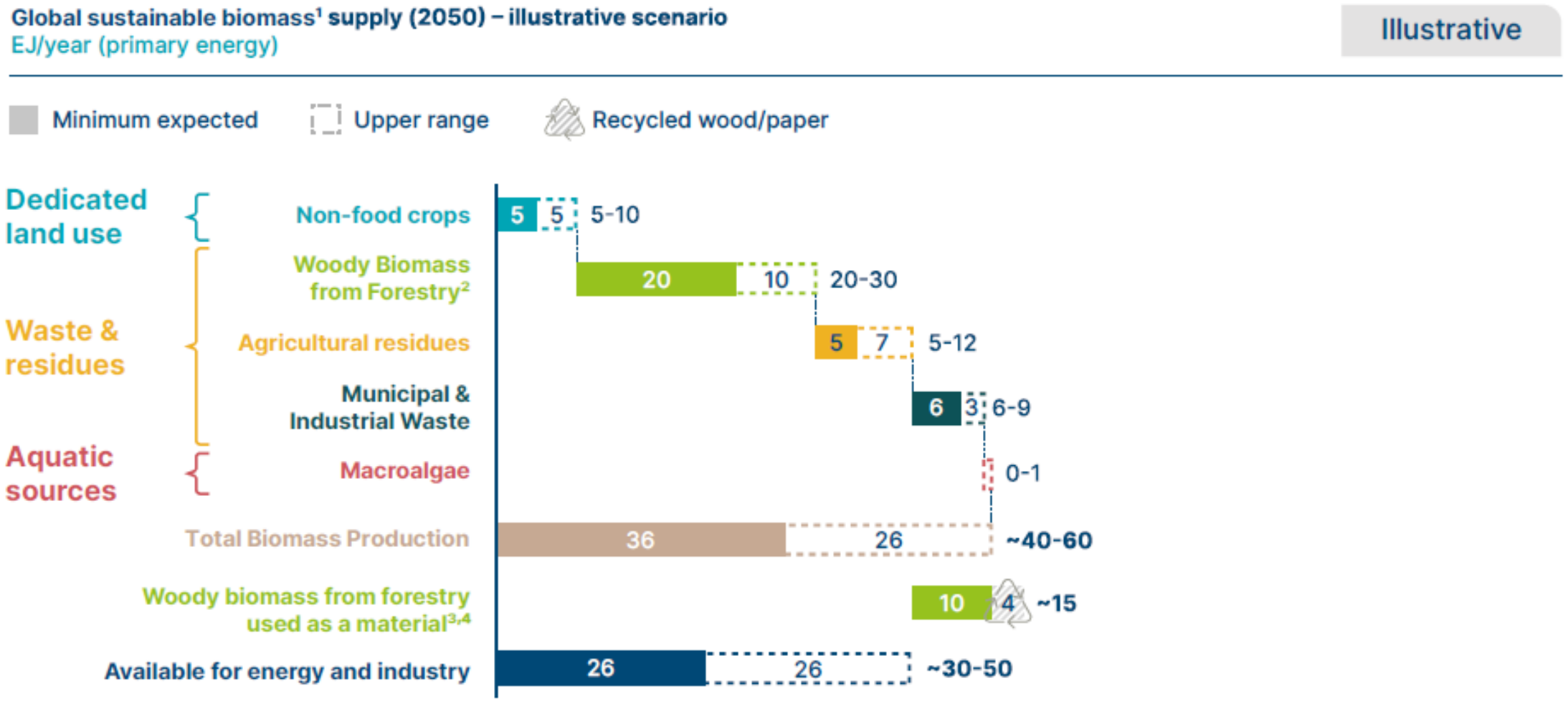
CCUS volumes in 2050 under Base scenario



Source: ETC (2022), *Carbon capture, utilisation and storage in the energy transition.*

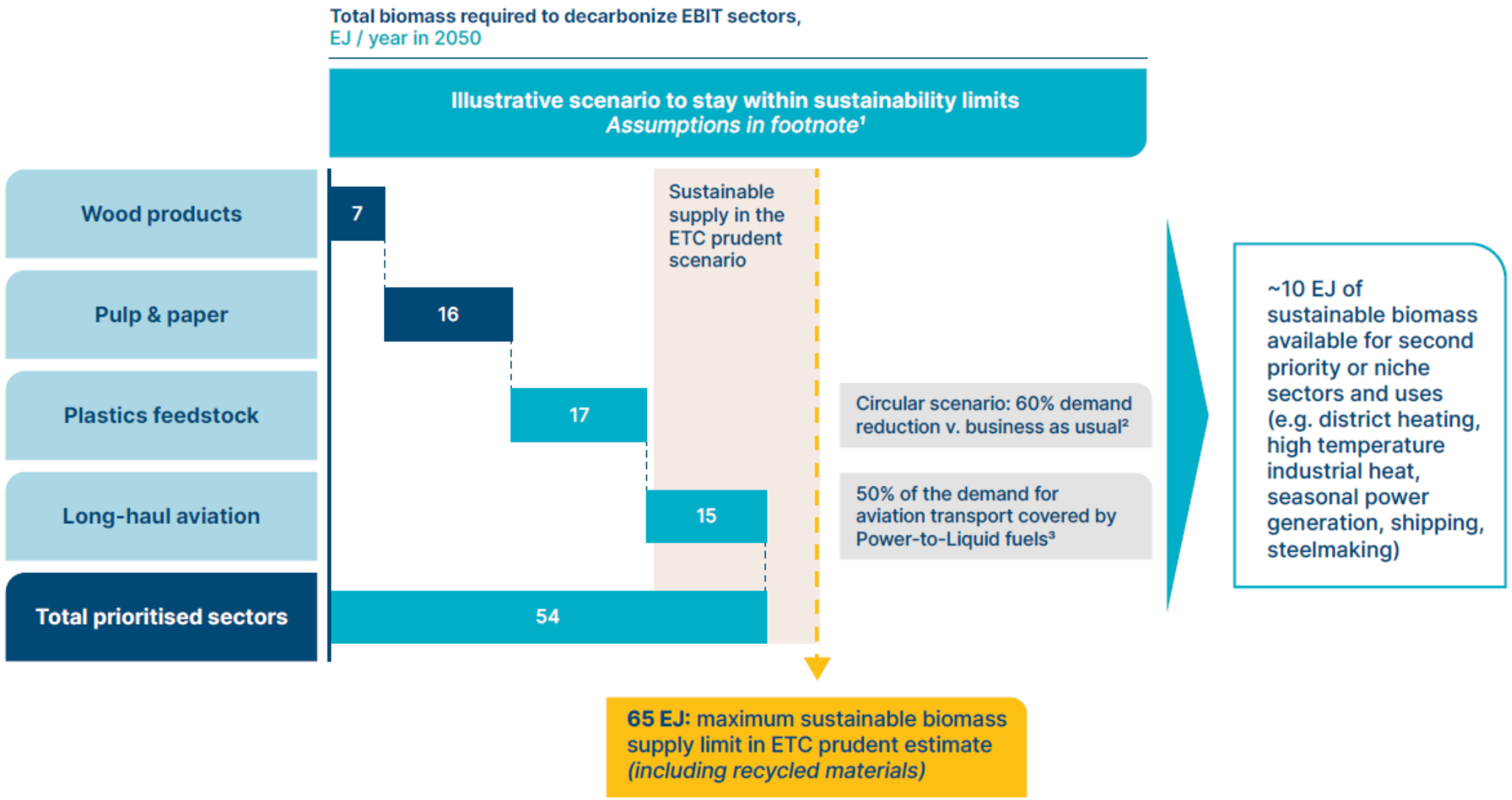
Sustainable bioresource supply must come from waste and residues, with limited use of dedicated bioresource crops

Carbon molecules



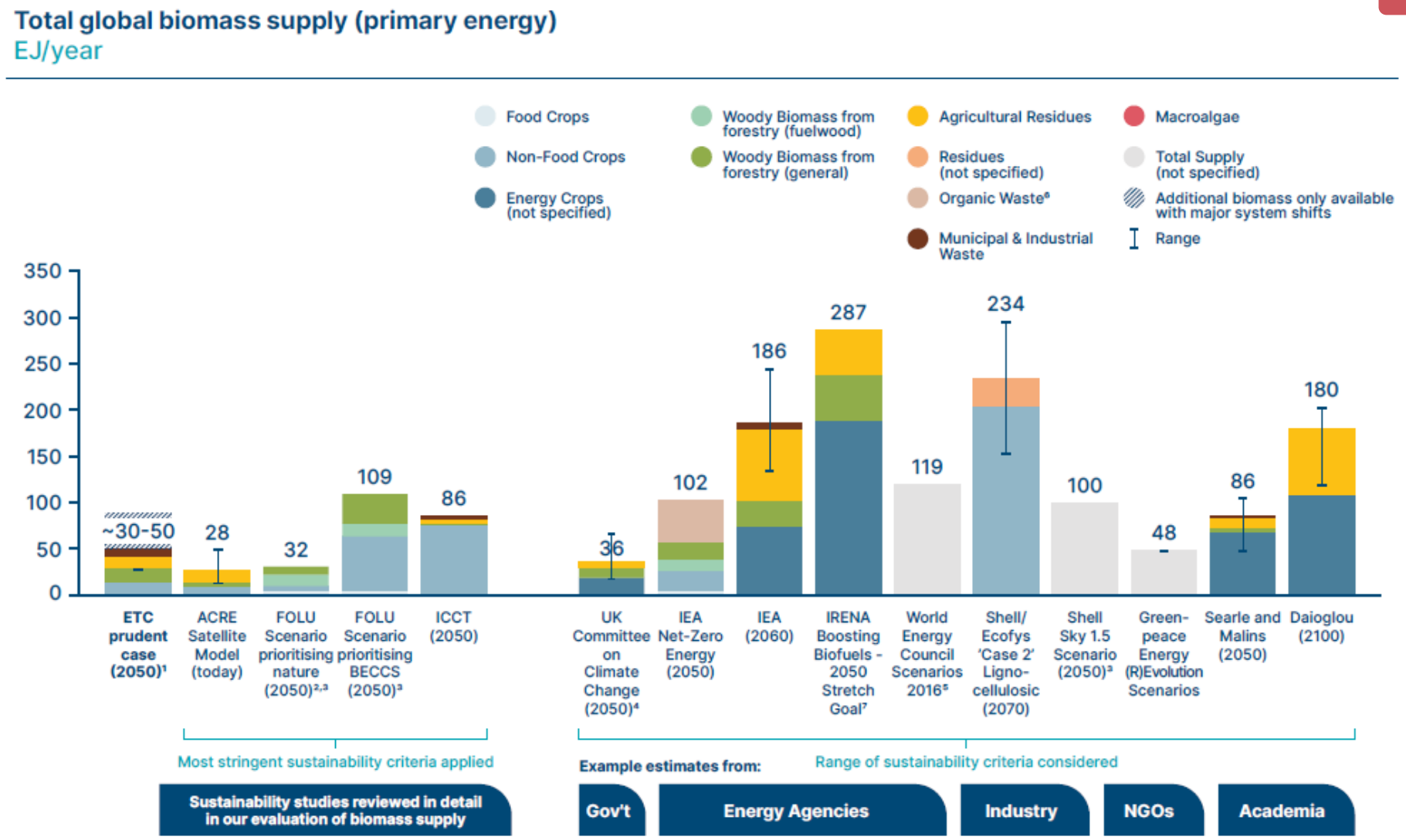
Note: [1] The term 'sustainable biomass' is used to describe organic material that is renewable, has a life-cycle carbon footprint equal or close to zero (including considerations for the opportunity cost of land), and for which the cultivation and harvesting practices used are mindful of ecological considerations such as biodiversity and health of the land and soil. [2] Includes high-quality stemwood from forestry suitable for the timber and pulp & paper sectors (~10 EJ/year today, FAO Industrial Roundwood production less by-products used for energy). This category also includes residues from forestry but excludes traditional fuelwood (~25 EJ/year today, assumed to reduce with modernisation) due to collection and sustainability assurance challenges. [3] E.g., timber, pulp & paper. Based on current harvests from commercial forestry; may increase if forestry additional high-quality stemwood could be made available if freed up land were dedicated to forestry. [4] Additional supply from recycled materials (~4 EJ/year today).
Source: ETC (2021), *Bioresources in a Net-Zero Economy*

Priorities for use of bioresources



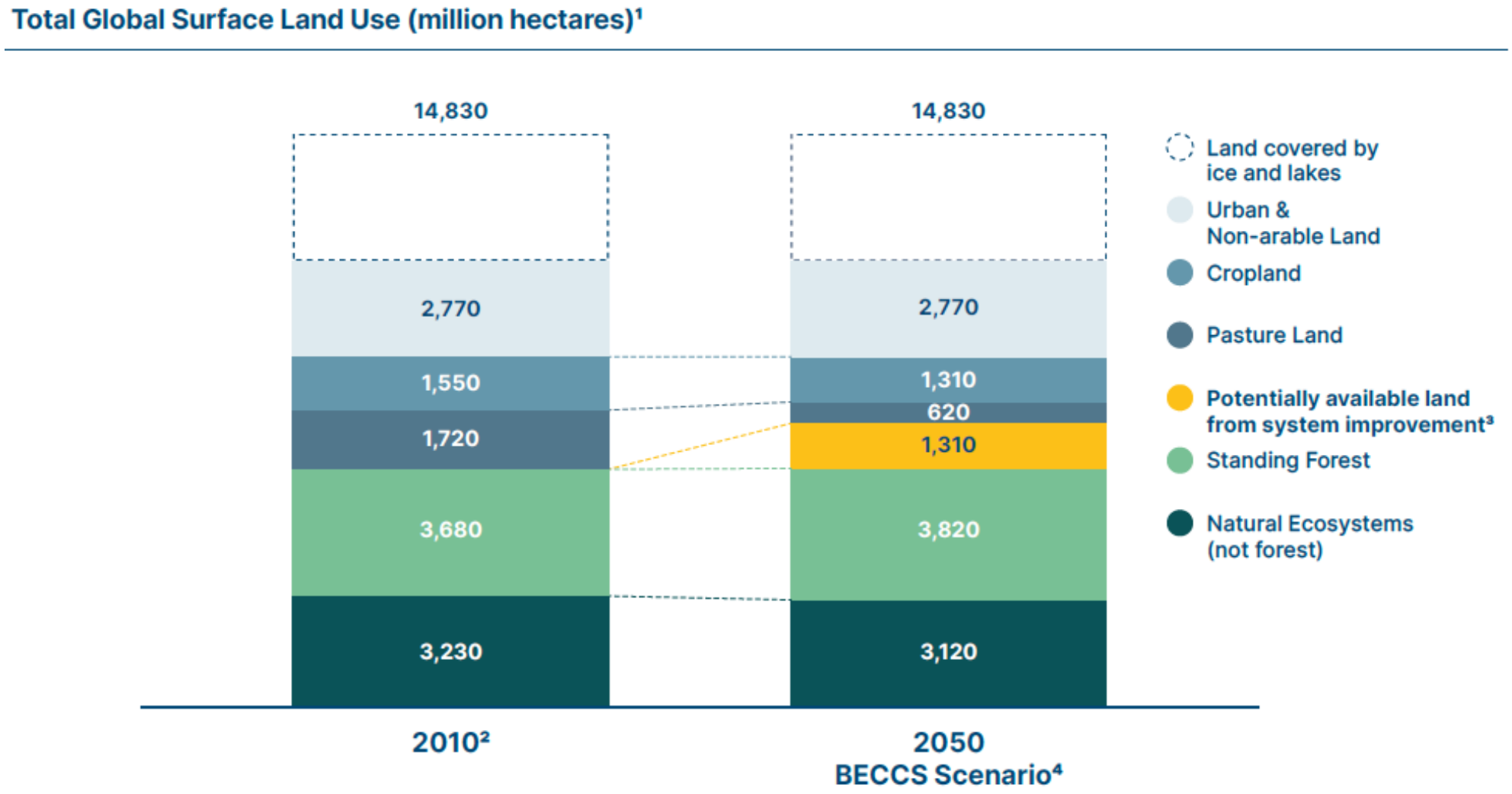
Other organisations see a much larger potential role for bioenergy

Carbon molecules



Source: ETC (2021), *Bioresources in a Net-Zero Economy*.

Radical changes to the food and agricultural system might allow 1 billion hectares to be freed up for alternative use…



Note: [1] Global surface area excludes oceans. Land covered by lakes and ice (e.g., Antarctica) also unavailable. [2] Baseline data forecast from 2000. [3] Of which a maximum of 1,050 Mha is likely to be suitable for managed forests and/or energy crops, though only a fraction of this potential might be used as such. [4] Unpublished scenario from FOLU/IIASA (2019), Growing Better.
Source: ETC (2021), *Bioresources in a Net-Zero Economy*

… but if available, this land might be better used to achieve other objectives

Carbon molecules

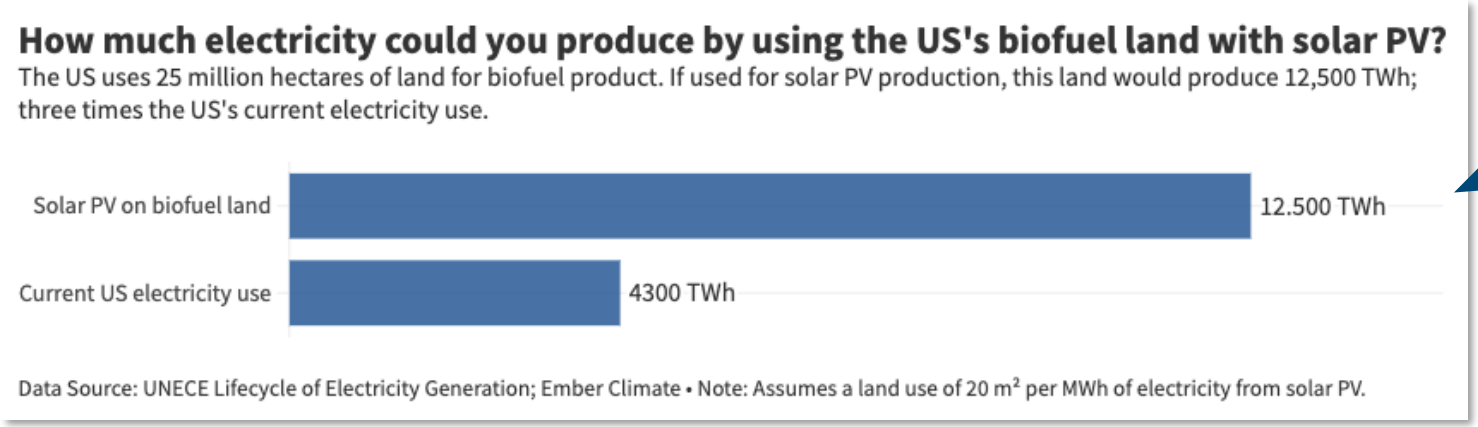
Alternative uses of surplus land

1. **Carbon removal** via forest growth and soil carbon sequestration - in some circumstances more carbon efficient than bioenenergy extraction

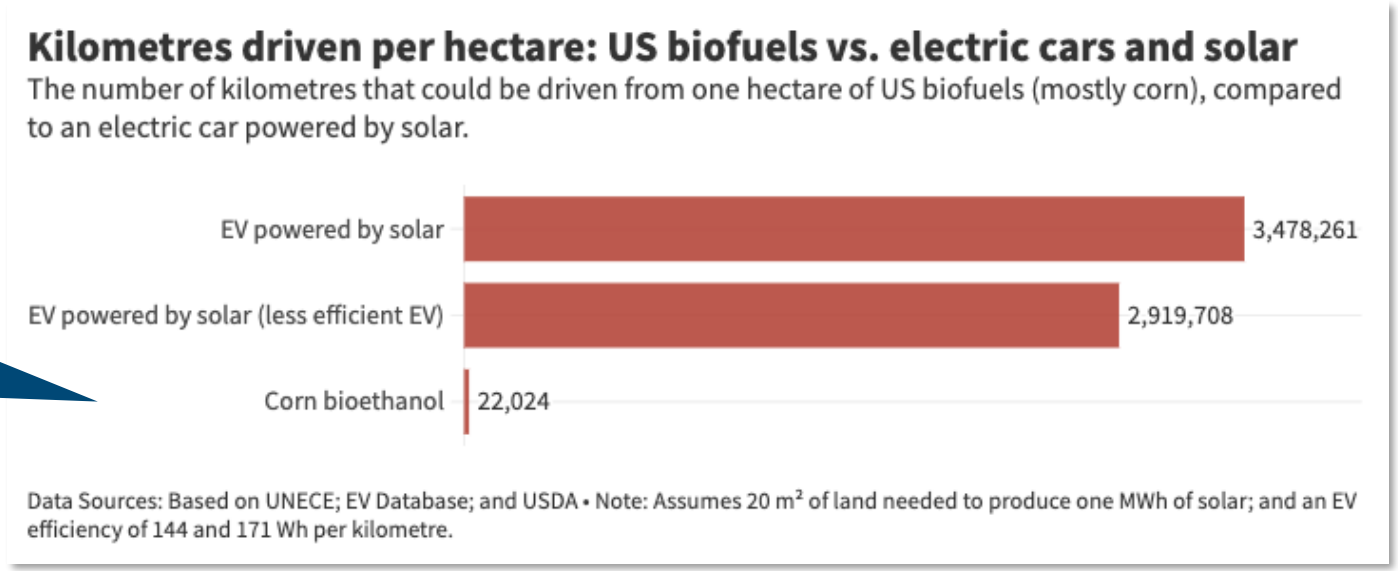
2. **Solar PV** over a fraction of the land needed for equivalent bioenergy extraction
   …potentially combined with agriculture - "agriPV"

3. **Biodiversity** via rewilding.

Photosynthesis is a land inefficient way to extract solar energy



Existing land use in key countries (US, Brasil) is significant – and could be more effectively used by e.g. solar power



Driving using bioefuels is over 100x less efficient than using an EV powered by solar PV

Source: Hannah Ritchie/Sustainability by Numbers (2023), *Biofuels: the US could switch to electric cars and solar power on a fraction of the land*

Carbon capture offers an opportunity to “recycle” carbon atoms

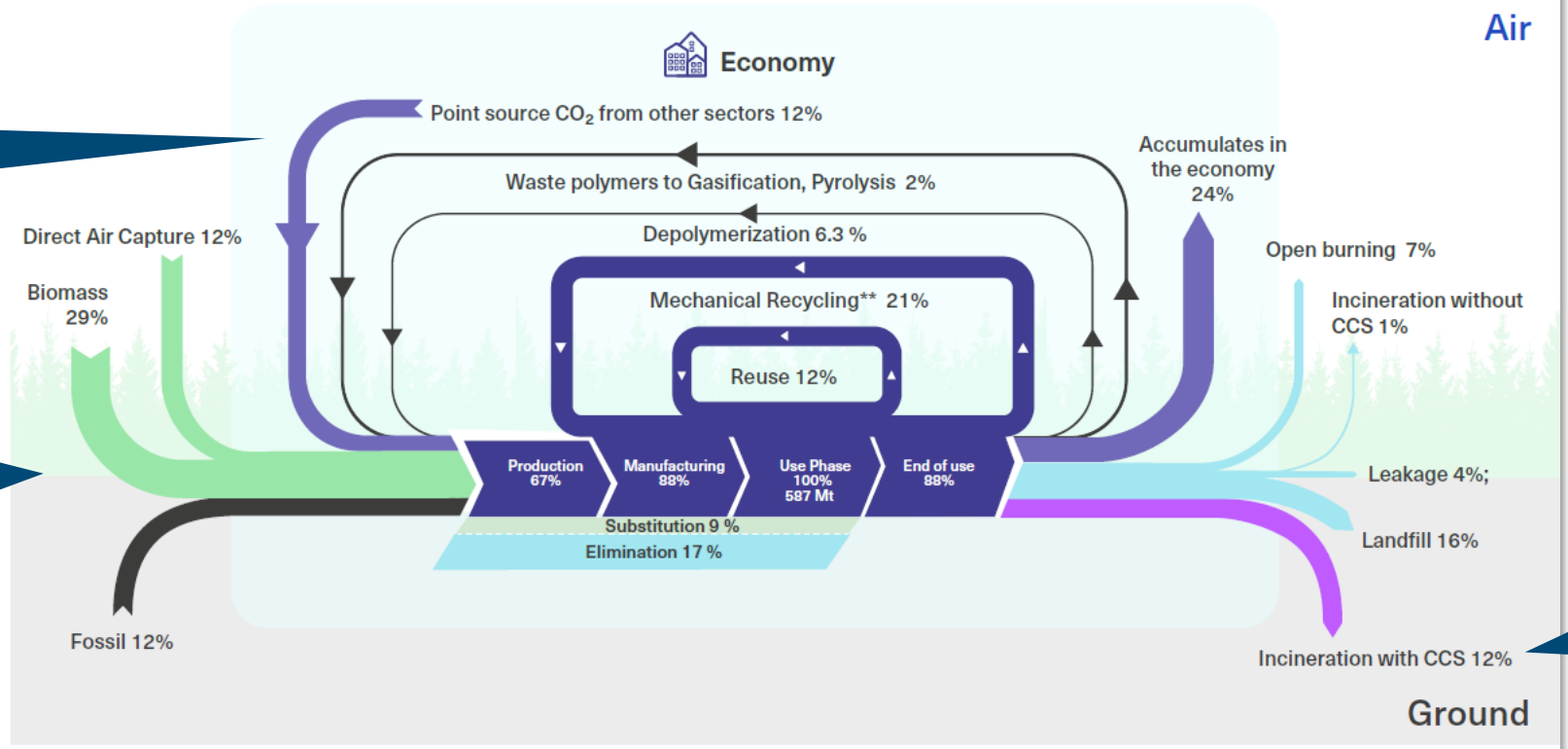
Multiple avenues for recycling of carbon-intensive molecules

Range of potential input sources for carbon atoms

Figure 22: Flow of chemical industry carbon from feedstock to end-of-life – LC-NFAX Scenario 2050

Increasingly, sourcing carbon feedstocks from the atmosphere can charge the chemicals system and has potential for generating negative emissions

2050 Low Circularity – NFAX Scenario



Note: Substiution and Elimination represent the % chemicals that will be reduced through LC levers.
*Point Source - Incineration + CCU assumes all chemical related energy recovery emissions are circulated back
**Mechanical recycling includes solvent-based recycling technologiesover a long term time horizon chemicals stored in the economy (e.g. construction plastics averaging 35 year life spans) will begin to churn out. All circulated carbon in Mt and as % of total use phase utility (I.e. Including sub and elimination).

Utilisation of captured carbon from incineration could be another input stream

Source: Systemiq/Centre for Global Commons (2022), *Planet positive chemicals*.

Innovation could free up land, increase the potential for recycling and reduce the energy inputs needed for molecular transformations

Synthetic biology / precision fermentation > synthetic meat

- Huge theoretical potential to reduce food land use, given inherent inefficiency of both photosynthesis and cattle based conversion of vegetable to meat protein
- Challenges of cost-competitiveness and consumer acceptance

Bioreactors/ microbial biocatalysts (e.g. Lanzatech)

- Reducing energy demands for multiple variants of molecular transformation
- Enabling lower cost conversion of waste, residues and CO2 streams into ethanol, other fuels, chemicals

Chemical recycling

- Depolymerization (via e.g. catalytic cracking – breaking down long hydrocarbons)
- Feedstock recycling (via e.g. pyrolysis or gasification)
- New catalysts significantly reducing required energy inputs

Electrochemical technologies

- e.g CO_2 electrolysis ("Twelve") reducing cost of CO_2+H_2 synthesis into jetfuel

How fast can these technologies develop and cost-reduce?

What implications for balance between:

- **Continued fossil fuel use + CCS**
- **Sustainable bioenergy supply and bioenergy applications**
- **Continuous recycling of carbon atoms**