Energy Transitions Commission

ETC 2024/25 Work Programme: Highlights, Strategy Recap, and look ahead to 2025

ETC Representatives Meeting

19th September 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	Offshore wind
	Energy storage & flexibility	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

ETC member engagement highlights in 2024 so far

6 Key meetings

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

10 Expert workshops

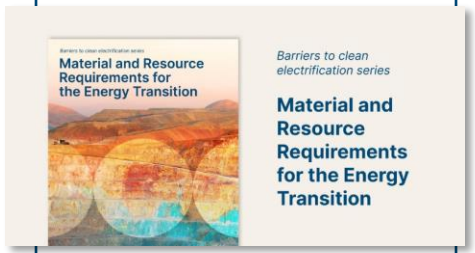
- 1x Ambition and format of NDCs
- 6x Buildings decarbonisation
- 1x Grids
- 1x Energy storage & flexibility
- 1x Road transport

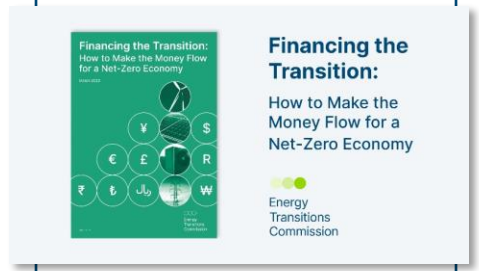
2 Reports produced

And 3 in process…

- Grids build note
- Road transport productivity
- Buildings decarbonisation

4 Webinars





- Streamlining planning and permitting
- Securing clean energy technology supply chains

3 Regional trips

India-Indonesia

Brazil

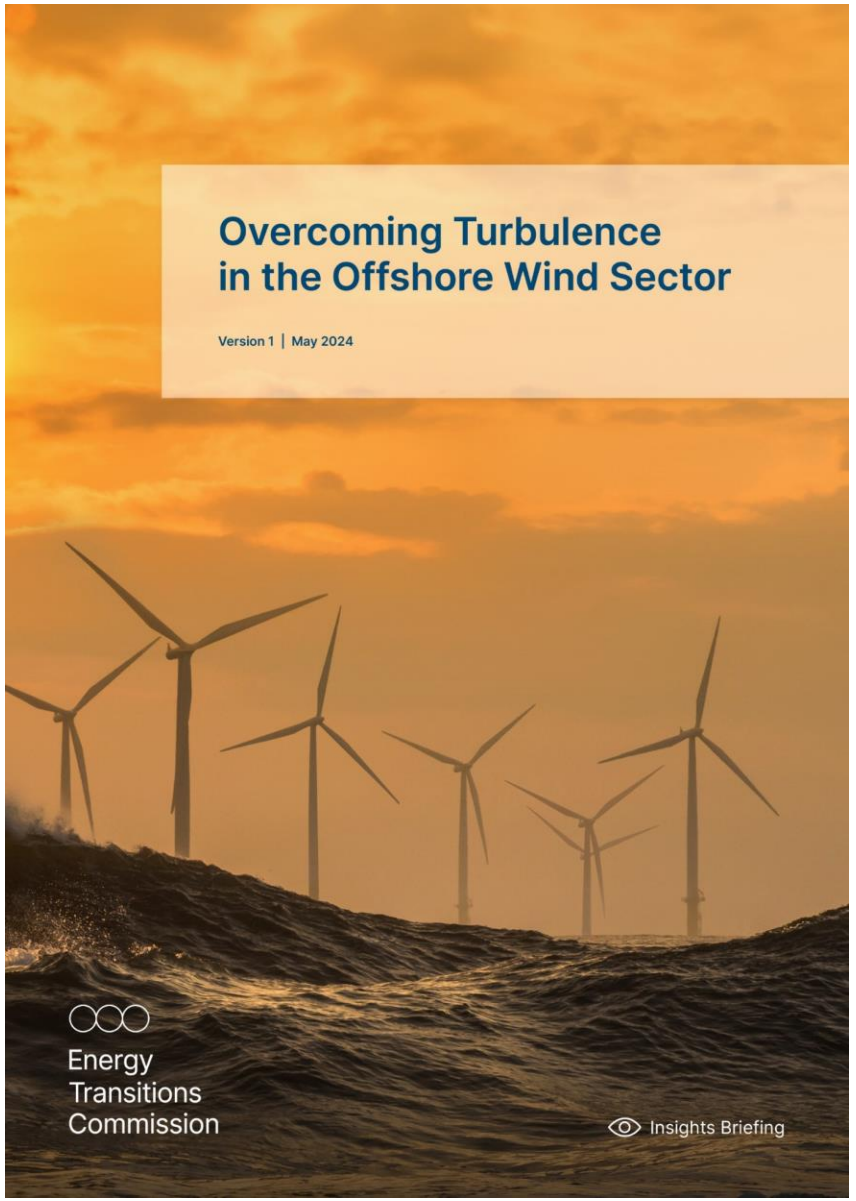
Canada

Offshore Wind Insights Briefing Key Messages

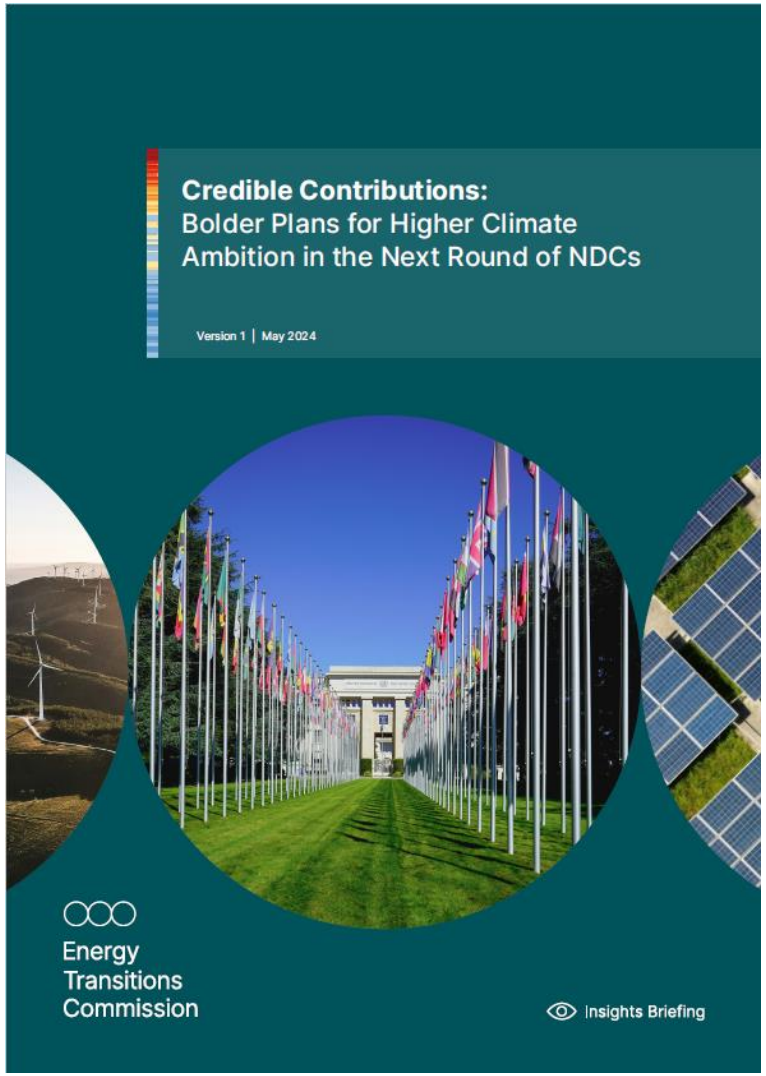
Governments and the offshore wind industry must join forces to restore confidence in the market, drive down costs and accelerate the clean energy transition.

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.



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.

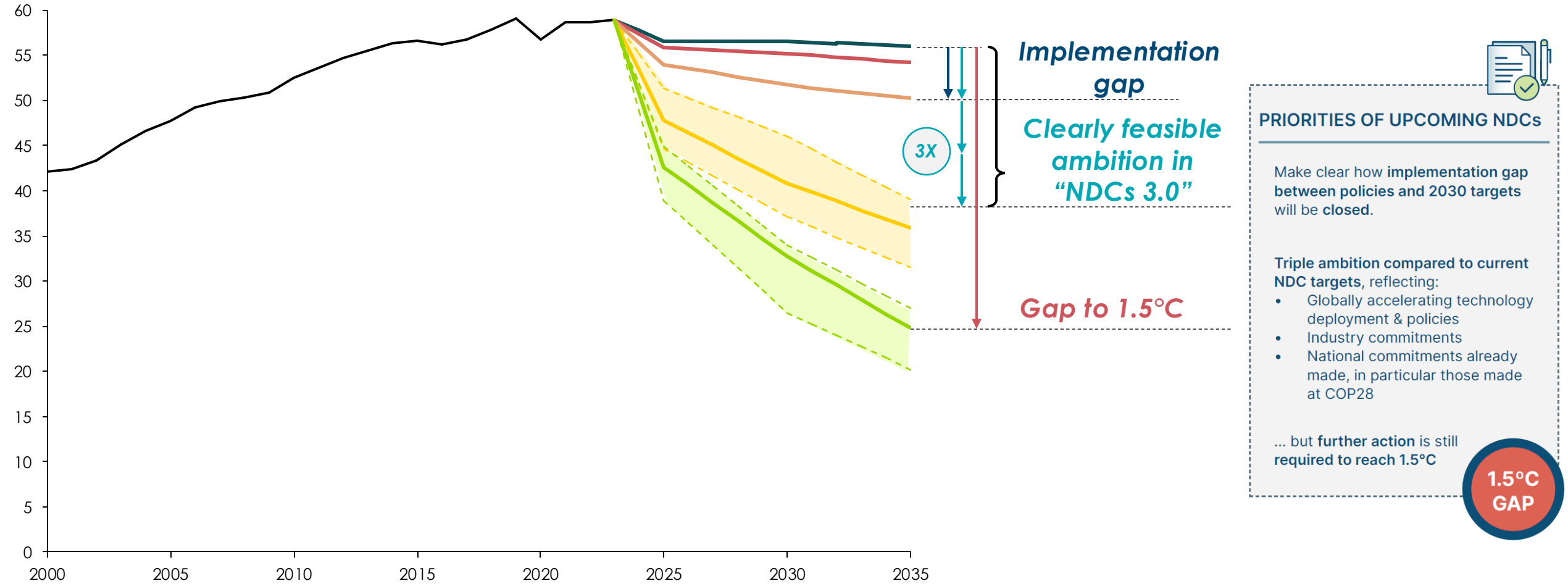
Key messages

- 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.**

The next round of NDCs can credibly triple in ambition and put the world on track for 2°C

Global GHG emissions

$GtCO_2e$ p.a.



PRIORITIES OF UPCOMING NDCs

Make clear how **implementation gap between policies and 2030 targets** will be **closed**.

Triple ambition compared to current NDC targets, reflecting:

- Globally accelerating technology deployment & policies
- Industry commitments
- National commitments already made, in particular those made at COP28

... but **further action** is still **required to reach 1.5°C**

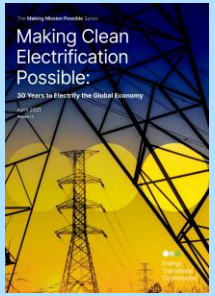
1.5°C GAP

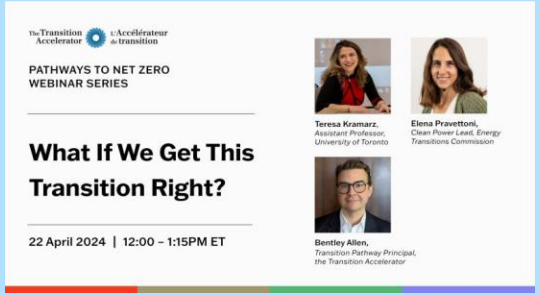
Notes: [i] Based on IPCC Working Group III Sixth Assessment Report scenario class c1 (limit warming to 1.5°C (>50%) with no or limited overshoot). [ii] Based on IPCC Working Group III Sixth Assessment Report scenario class c3 (limit warming to 2°C (>67%)). [iii] Range corresponds to range between tenth and ninetieth percentile, central line corresponds to median.

Sources: Systemiq analysis for the ETC based on [1] IPCC (2022), *Metadata Browser: Data for Figure SPM.5 - Summary for Policymakers of the WGIII Contribution to the IPCC AR6*, [2] UNEP (2023), *Emissions Gap Report: Broken Record.*

Repackaging and amplifying ETC insights so far in 2024

Beating the drum on Clean Electrification across new regions and audiences

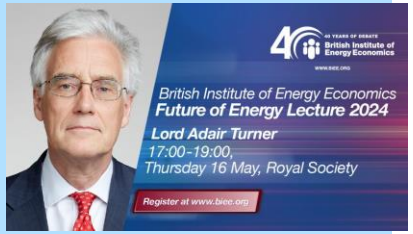




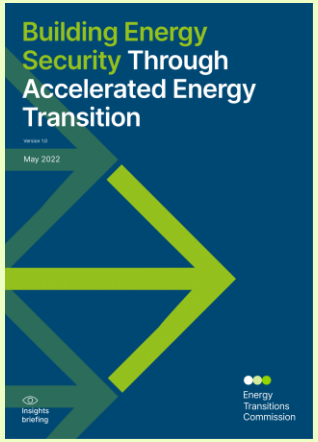
THE GLOBE AND MAIL

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

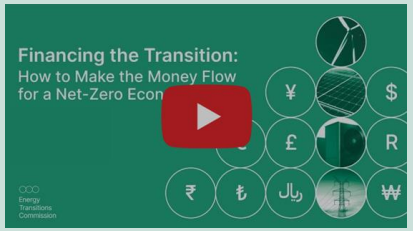
How to reach net-zero: Planning & Permitting



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



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



SustainableViews
Navigating ESG policy and regulation

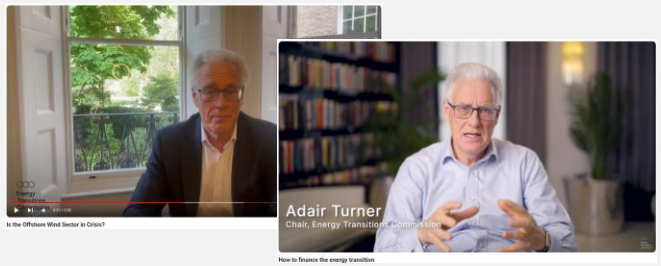
Why cash, not regulation, may hold key to halting deforestation

Climate Investment Summit

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

New Delhi Times

THE TIMES

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

CORRIERE DELLA SERA

S&P Global Energy Evolution

Expanding our reach to new audiences and interest groups – including via podcasts

sustainability unlocked

6 Carbon Economist Podcast

edie SUSTAINABILITY UNCOVERED

FairCharge The Little Book of EV Myths

UNIVERSIDAD Panamericana

Erasmus University Rotterdam

GIIA Global Infrastructure Investor Association

ETC 2025 work-programme – discussion with ETC Representatives

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. **Building the ETC regional network**
   - Regional programme
3. **Extending our influence in the global climate debate**
   - Communications programme
4. **Delivering action through future COPs**
5. **Supporting the MPP** MISSION POSSIBLE PARTNERSHIP
6. **Supporting the ETC members**

We are now just over 1/3 of the way through this work and we want to:

- Share overview of where we plan to focus over next 15 months
- Share reflections after our Commissioners meeting discussions
- Discuss prioritisation, any additional areas.

We discussed this with Commissioners at June ’24 ETC meeting – and have integrated into our proposed plan for 2025

- **Discussions on:**
  - State of the transition
  - ETC work programme 2024-25
  - Power systems balancing
  - Energy productivity

- **Key debates on:**
  - Global clean energy supply chains
  - Financing the transition
  - The role of carbon credits

- **Input across multiple topics, including**:
  - white hydrogen,
  - geothermal energy,
  - power demand as a key focus,
  - the importance of social buy-in, & ‘who pays’,
  - importance of power systems optimization,
  - reflections on buildings,
  - global climate objectives (1.5 vs. 1.7C)
  - cautionary reflections on short term oil and gas growth

ETC Commissioners discussed three key transition topics in June 2024

Supply chains:
Trade of low carbon technologies

- Key issues included factors risking slowing the transition and impact of trade instruments.
- Importance of assessing the benefits and risks of local supply chain policies was highlighted.
- Agreement on requirement of fact-based principles to guide the debate.

Next steps: Taking insights into conversation with WTO. ETC to explore integration into work programme, with a possible briefing note in **2025 Q1**.

Financing the Transition:
Insights for NDCs and NCQGs

- Key issues discussed: implications of rising real interest rates, the lack of progress on reform of climate development finance, challenges of higher cost of capital and geopolitical tensions, and MDB reforms.
- Commission recognised need for clarity ahead of discussion on the New Collective Quantified Goal on finance and Nationally Determined Contributions at COP29

Next steps: ETC to produce a **"repackaging" of ETC insights on finance** in Oct'24, a month ahead of **COP29.**

Carbon credits:
Role scope 3 in Carbon markets

- The evolving debate on corporate carbon credits, building on recent controversy at the SBTi – in particular carbon credits in the context of scope 3 emissions
- Relevant to ETC's work on carbon markets and finance.
- Agreement on need for clarity on debate, and opportunity to accelerate corporate action towards key areas (e.g. removals)

Next steps: ETC submission to SBTi Standard consultation, **"repackaging" ETC insights on finance and carbon removals** covering role of corporate decarbonisation (incl, Scope 1 & 2 vs. 3 action) highlighting importance of the "area under the curve". **Q1 2025.**

Last year we proposed a two year work-programme

1

Extending our influence in the global climate debate

Analytical programme

2

Building the ETC regional network

Regional programme

3

Extending our influence in the global climate debate

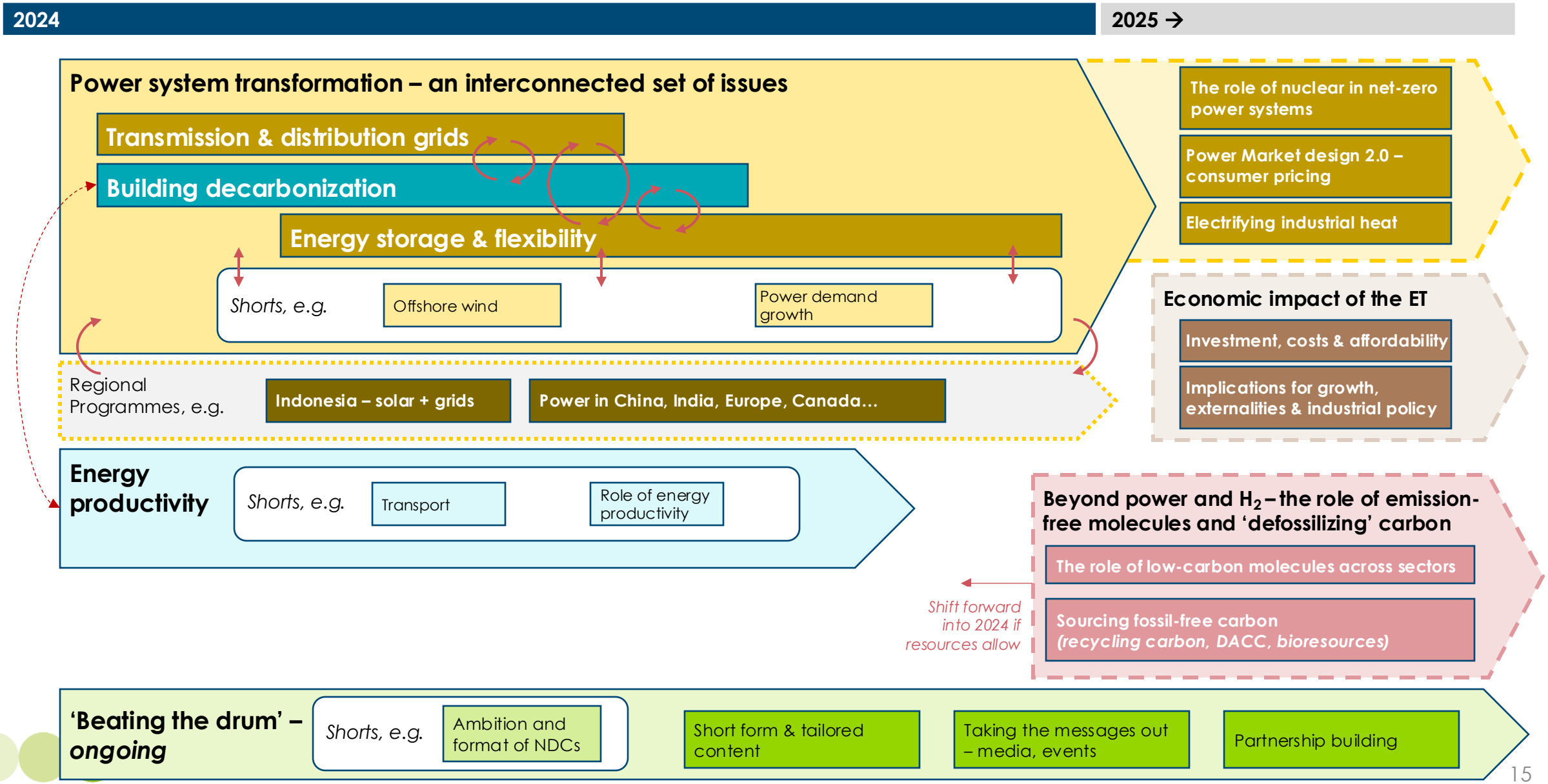
Communications programme

4 **Delivering action through future COPs**

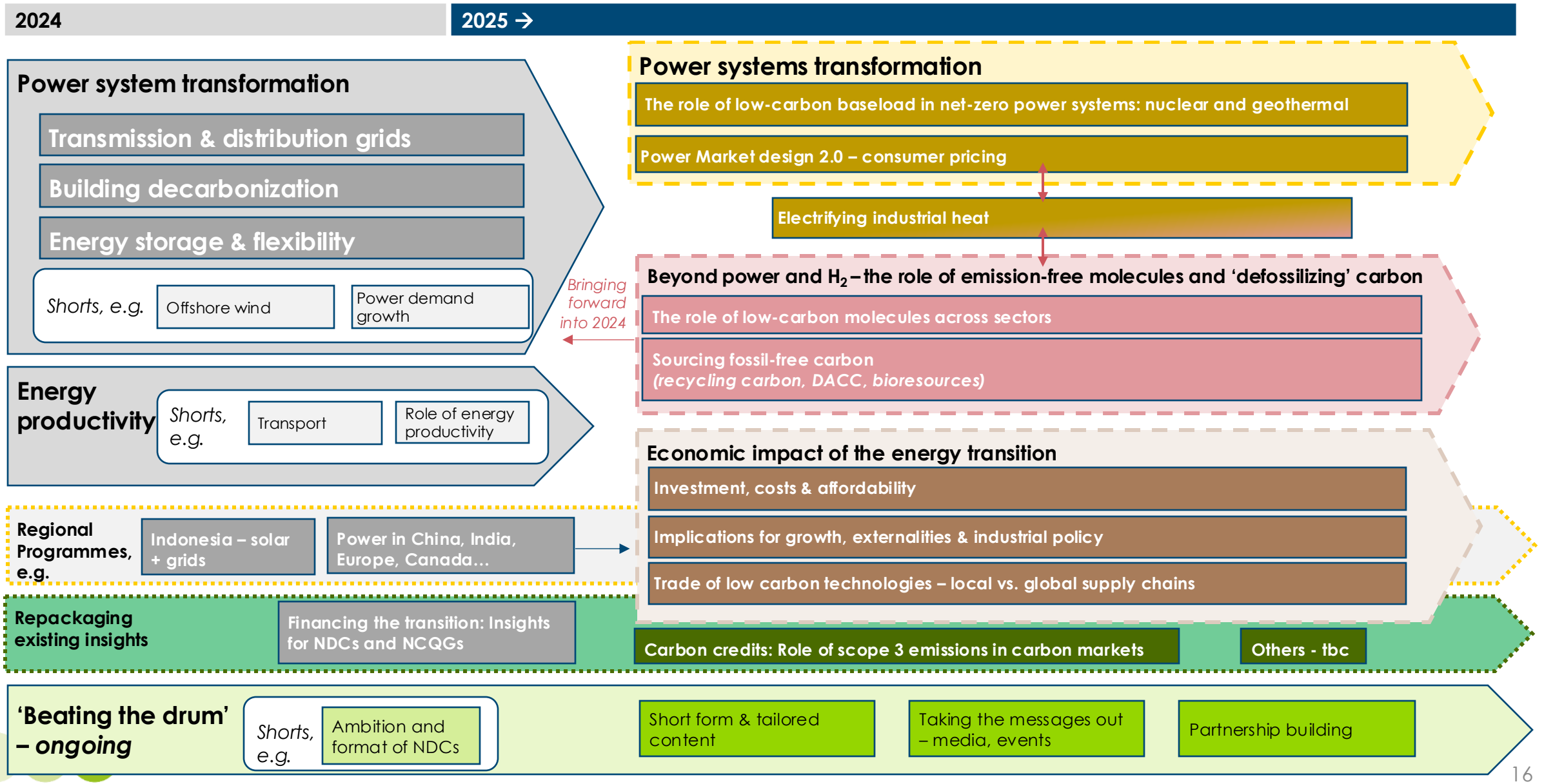
5 **Supporting the MPP** MISSION POSSIBLE PARTNERSHIP

6 **Supporting the ETC members**

In our 2024 workplan we outlined the 2 year plan



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)

Starting in September 2024 with additional support from QCF

3. Economic impacts of the Transition

- Investment, **costs** & **affordability**
- Implications for **growth**, externalities & industrial policy
- **Trade** of low carbon technologies – local vs. global supply chains

4. Power system transformation – further deep dives

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

Repacking existing ETC insights:

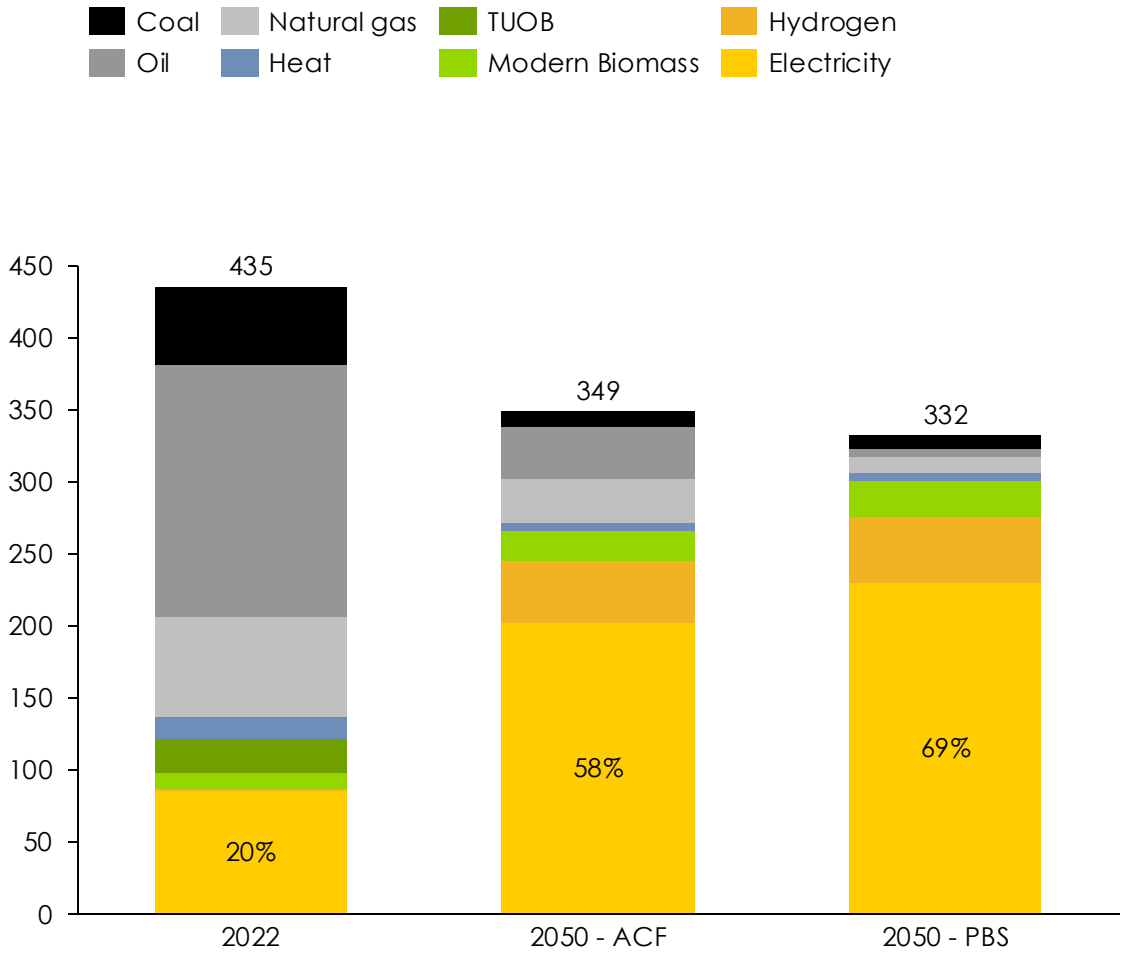
Carbon credits: Role of scope 3 emissions in carbon markets

Others - tbc

Clean electrification will be the most important driver of decarbonisation…

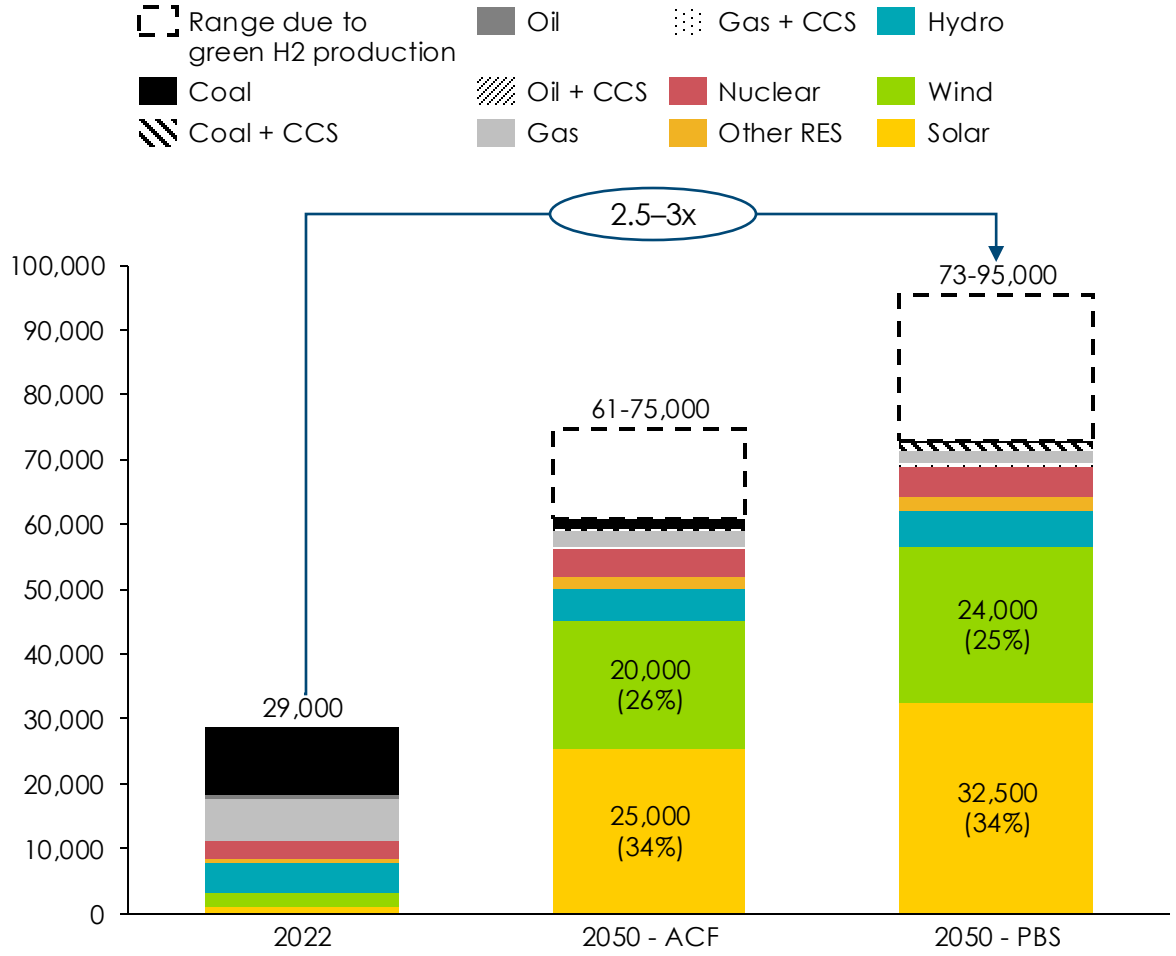
Electricity will need to go from 20% → 55-70% by 2050

Final Energy Consumption, EJ



Power generation will be dominated by wind and solar

TWh

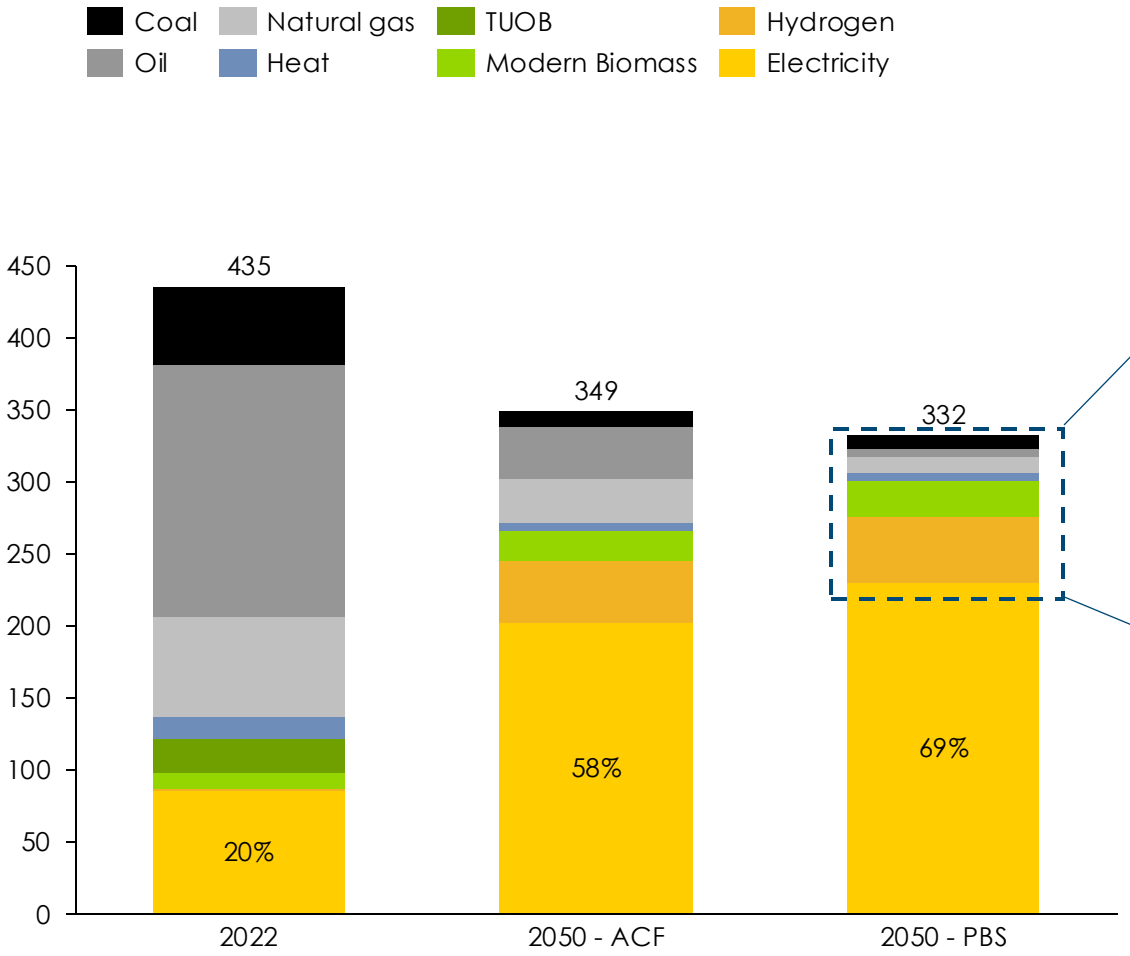


Note: ACF = Accelerated but Clearly Feasible; PBS = Possible but Stretching. Wood products and pulp and paper excluded from modern biomass
Source: ETC (2023), *Fossil fuels in transition*.

…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*.

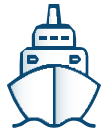
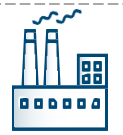
Molecules will likely be essential in aviation, chemicals, fertilisers, shipping; for other sectors electrification will likely dominate

Carbon molecules

Likelihood of role	Potential Application	Current Fossil Fuel Demand[1] Coal	Gas	Oil	Sector power demand in 2050 Final and Intermediate	Share of electricity in FED in 2050
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	

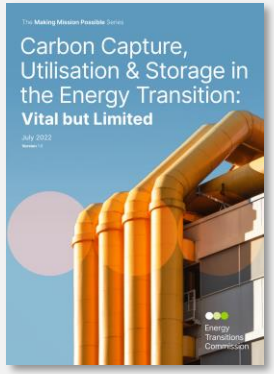
[1] Demand is for direct use of fossil fuels.
Source: Systemiq analysis for the ETC; ETC (2023), *Fossil Fuels in Transition*.

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

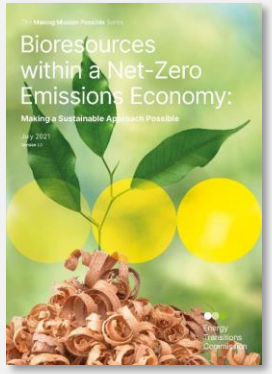
Likelihood of role	Potential Application	Options for low-carbon molecules
Most likely role for molecules	**Aviation** 	• *Biofuels (HEFA-based or other e.g., from gasification)* • *Synthetic fuels enabled by carbon streams (likely from point-source or direct-air capture) and low-carbon hydrogen* • *Potential 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*.

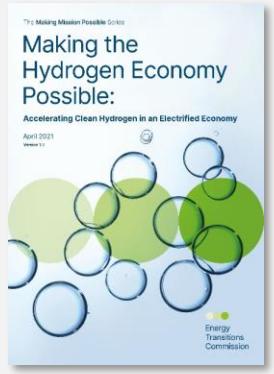
Previous ETC reports have assessed the relative role of role of CCUS, bioresources and hydrogen



- 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 km^2 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: 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; also **balance with constrained scenario**
- 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 (incl. white H2)**, 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

Phase 3 and 4 will get to the heart of the molecules question

The potential to recycle and reuse carbon molecules

Assessment of:

- Combined energy and materials system demand for carbon molecules
- Linear vs. circular systems
- Novel recycling processes – including mechanical recycling, depolymerization, gasification & pyrolysis
- Relative energy requirements, costs and emissions implications.

Output: high and low recycling scenarios to understand volume of low-carbon molecules that may be required.

Sources of primary carbon: costs and sustainability

Assessment of:

- Latest technological developments and cost trends in point source carbon capture (CCS) in different applications.
- Latest technological developments and potential future costs trends in direct air capture of CO2 (DACC).
- The potential to extract and use bioresources in a cost effective and truly sustainable way. Where the concept of sustainability needs to cover: full life-cycle carbon emissions, local biodiversity impacts, competition with other uses of land including food production and local community impacts.

Output: revised vision of low-carbon molecule use in a net zero energy system.

Carbon capture offers an opportunity to “recycle” carbon atoms

Multiple avenues for recycling of carbon-intensive molecules

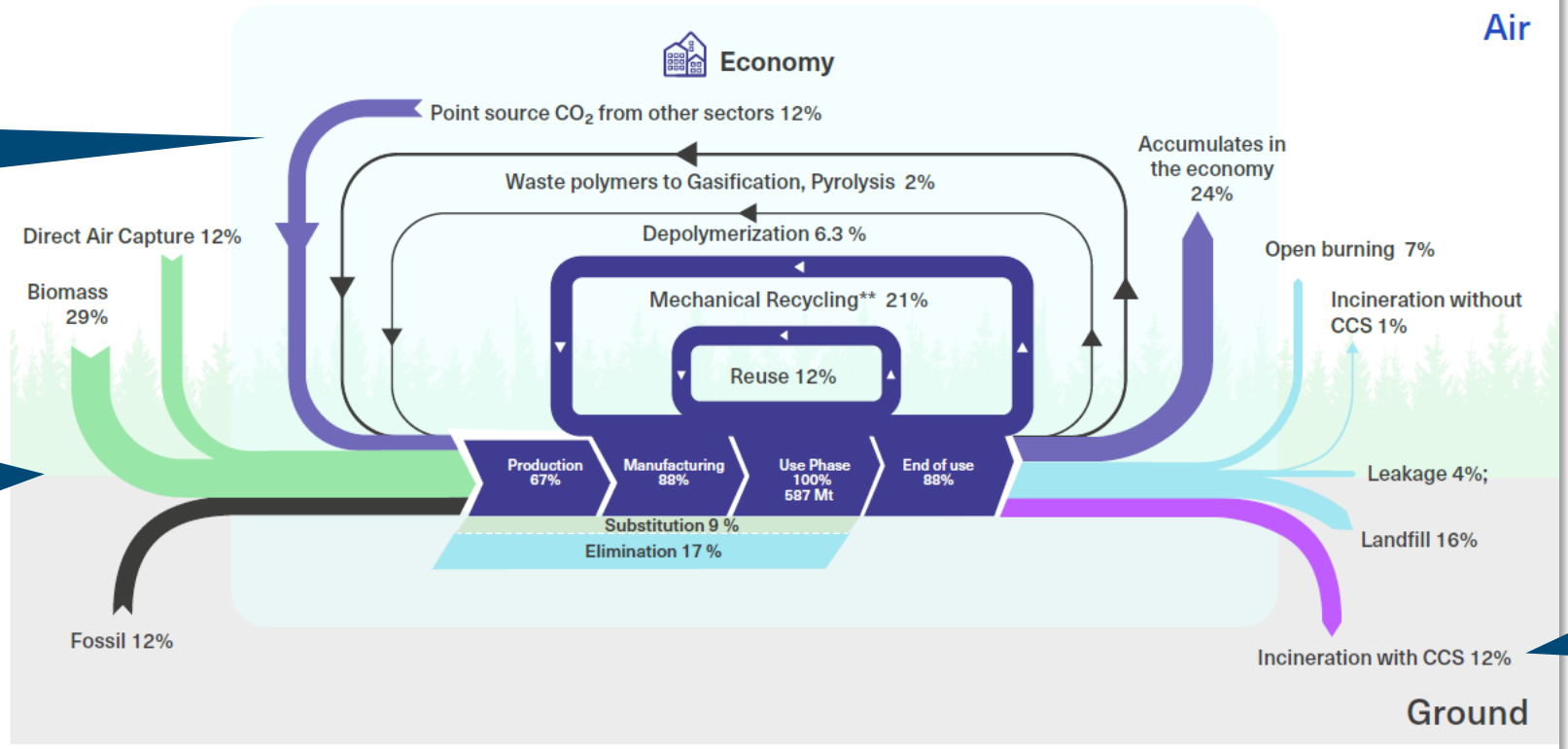
Range of potential input sources for carbon atoms

Utilisation of captured carbon from incineration could be another input stream

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).

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**

2025 analytical work-programme

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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)

Starting in September 2024 with additional support from QCF

3. Economic impacts of the Transition

- Investment, **costs** & **affordability**
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4. Power system transformation – further deep dives

- The role of **nuclear & geothermal** in net-zero power systems
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- Electrifying **industrial heat**

Repacking existing ETC insights:

Carbon credits: Role of scope 3 emissions in carbon markets

Others - tbc

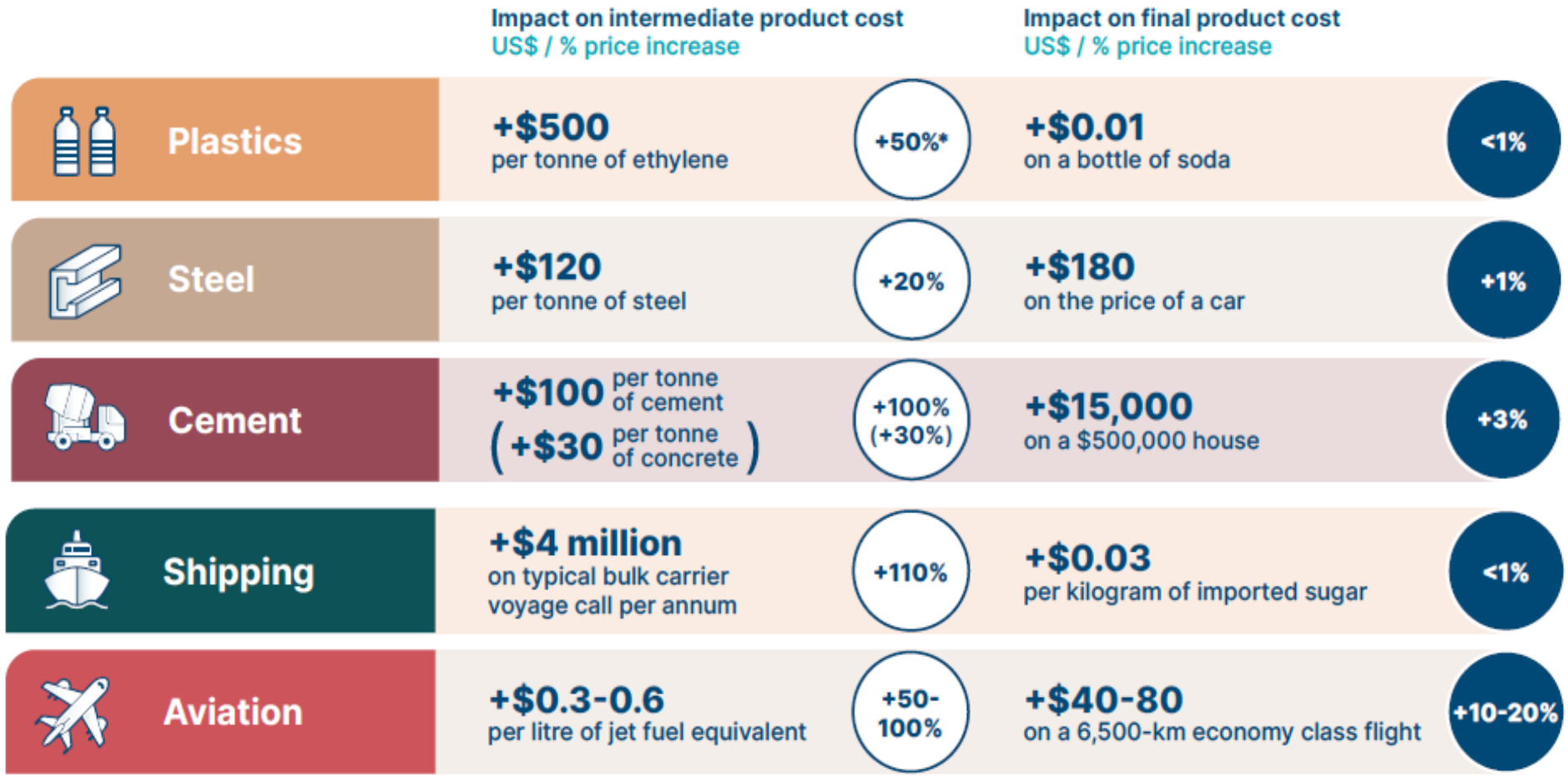
In Mission Possible and Making Mission Possible we considered the impact of the transition on consumers by sector

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

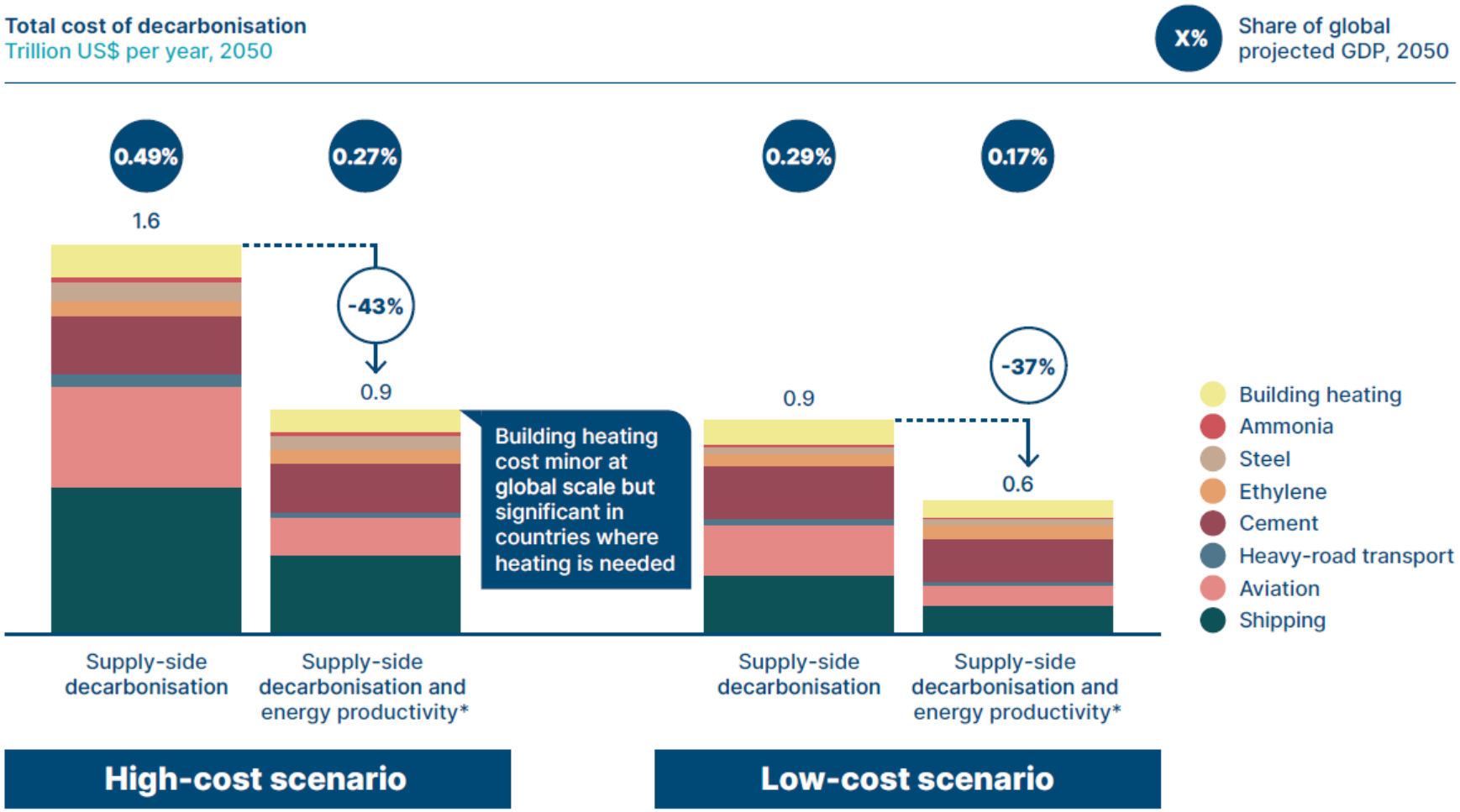
But important specific distributional effects need to be recognised:

- **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.
- **Road transport:** Electric vehicles are or will be lower cost than fossil cars, while road freight costs will be broadly unchanged. Cost and feasibility of initial EV adoption will vary significantly by specific location and use patterns.
- **Residential heat:** Decarbonising residential heat could have a significant impact on living standards for specific households.
- **Multiple sectors with negligible impact.**
- **Industrial sectors:** For heavy industry sectors, consumer incremental costs will be very small as intermediate products account for a small proportion of the cost of final goods or services.
- **Long-distance aviation:** Decarbonising long-distance aviation will probably require a significant increase in ticket prices versus business as usual.

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



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

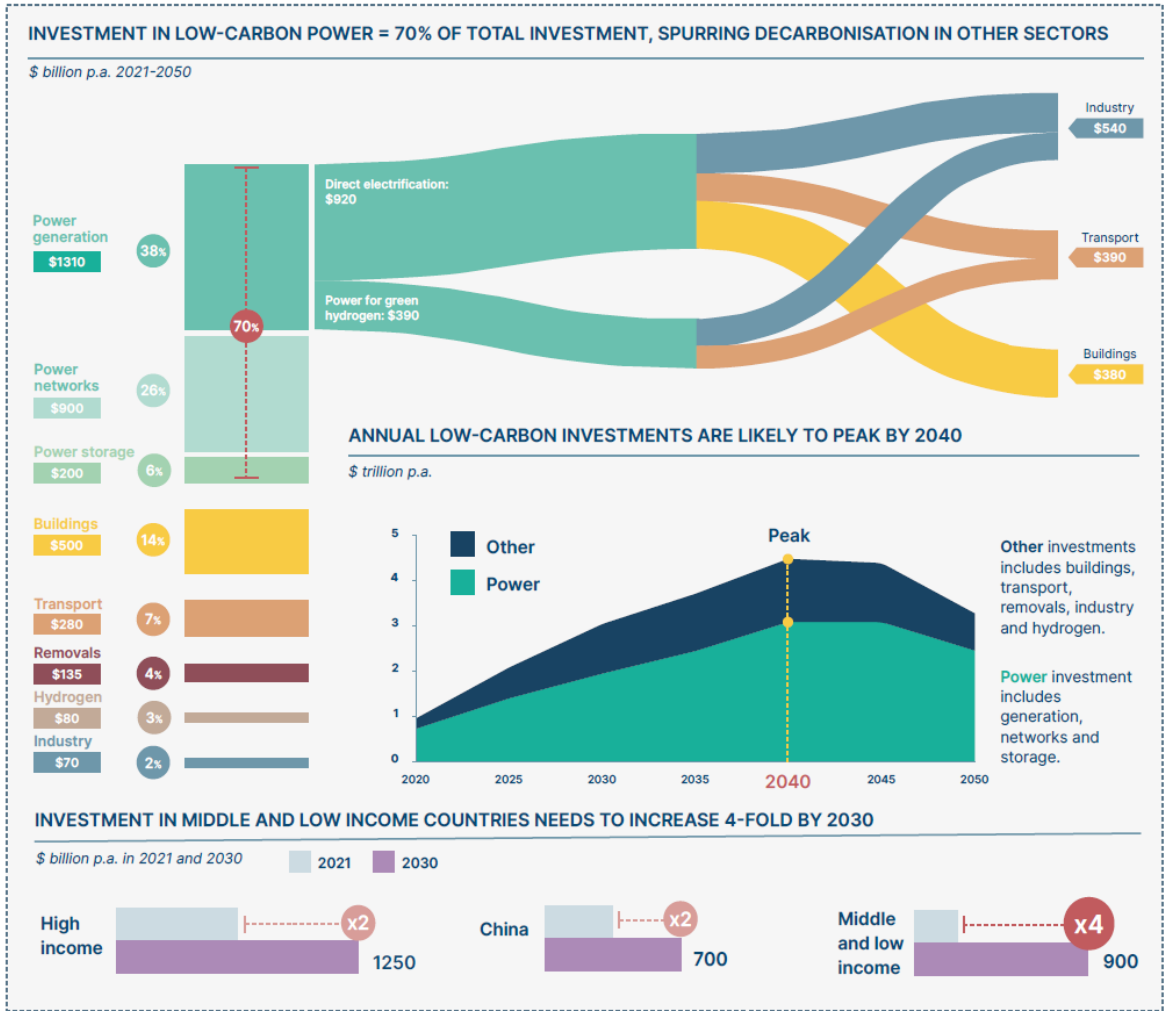


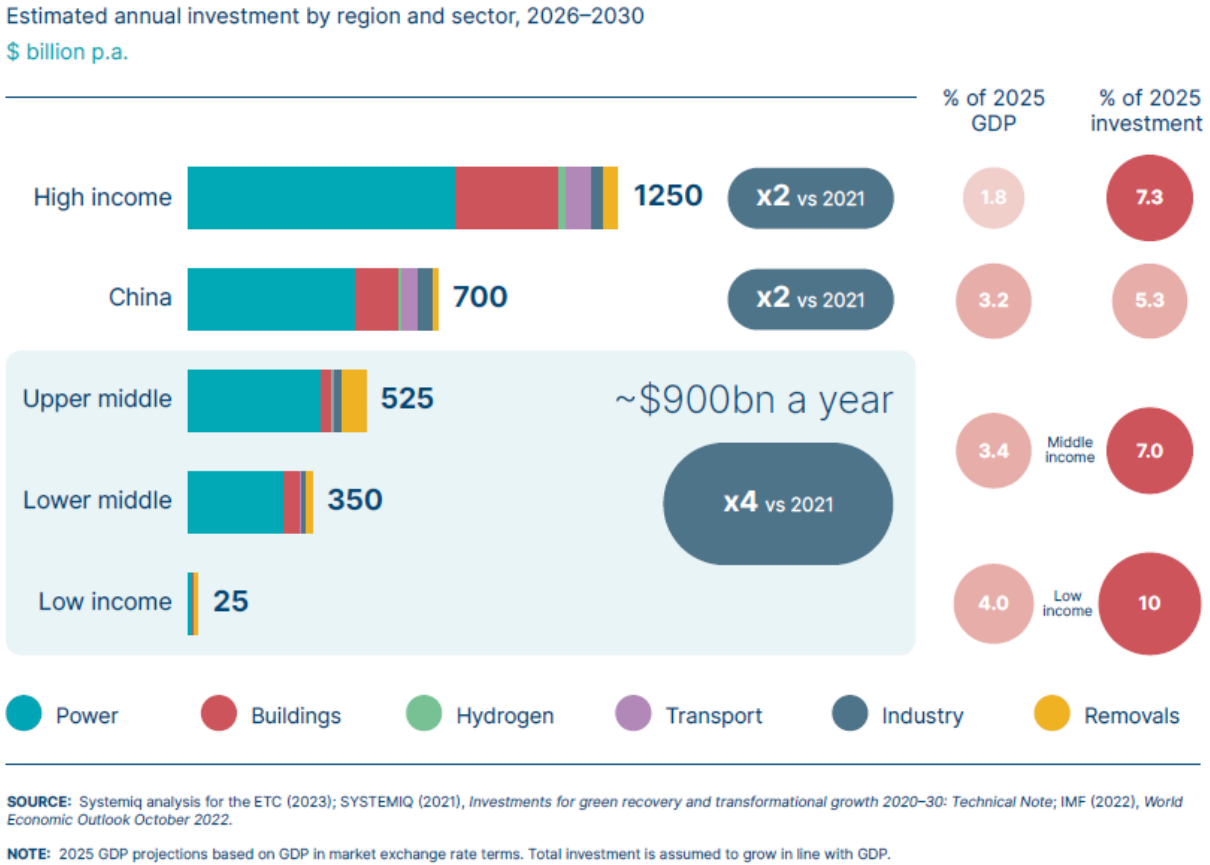
NOTE: The term "energy productivity" covers energy efficiency, material efficiency and service efficiency.

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…

Economic impacts of the transition





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

Economic impacts of the transition

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, jobs and the need for a "just transition"**

Current hypotheses:

- **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.**
- **Net jobs impact likely less than assumed – positive or negative – key issue is specific training and retraining needs.**

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Power system transformation – rounding out critical issues & barriers to clean electrification – which focus areas to prioritise?

Power system transformation

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 low-carbon baseload

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

Role of geothermal

Geothermal energy is expected to increase its relevance through novel technology adoptions that unlock more economic operations.

- Consider the role of geothermal energy for power and heat, and Enhanced Geothermal Systems (EGS)as a novel technology that can unlock more globally widespread operations.

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

Critical link to low carbon molecules work

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**

- **Costs of geothermal relative to other low carbon technologies.**
- **System benefits (incl. heat provision, and flexibility)**
- **Risks and local environmental impacts**

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

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Analytical programme

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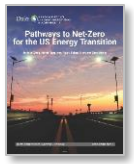
4 Delivering action through future COPs

5 Supporting the MPP

MISSION POSSIBLE PARTNERSHIP

6 Supporting the ETC members

Consolidating the ETC's growing regional network

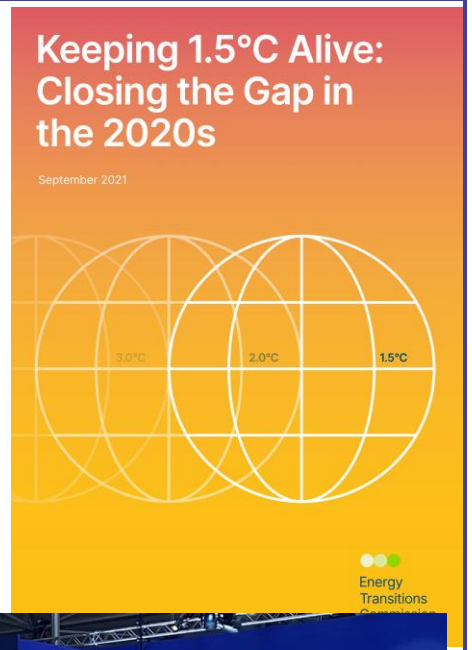
Est.	2017	2018	2018	2019	2020	2021	2021	2022	2023	2024
Knowledge Partner(s)	teri, RMI	Energy Foundation 能源基金会, Tsinghua University, RMI	SYSTEMIQ, European Climate Foundation	Mission Possible Partnership, Climateworks Centre	Duke Nicholas Institute for Energy, Environment & Sustainability, World Resources 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

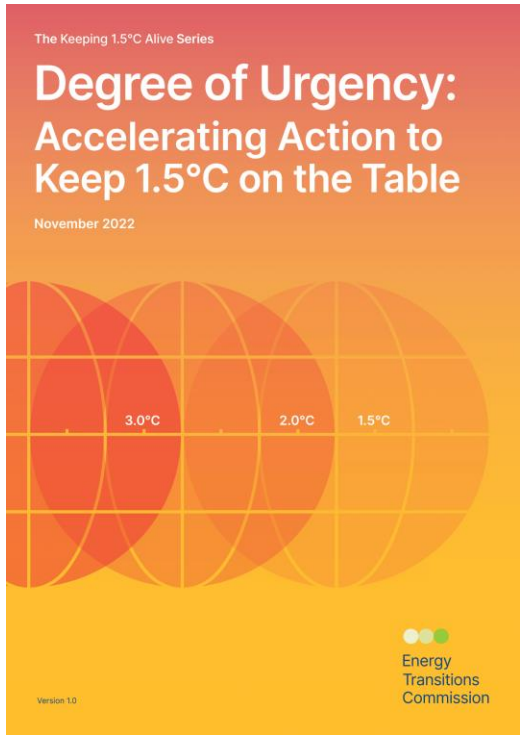
UN CLIMATE CHANGE CONFERENCE UK 2021

IN PARTNERSHIP WITH ITALY



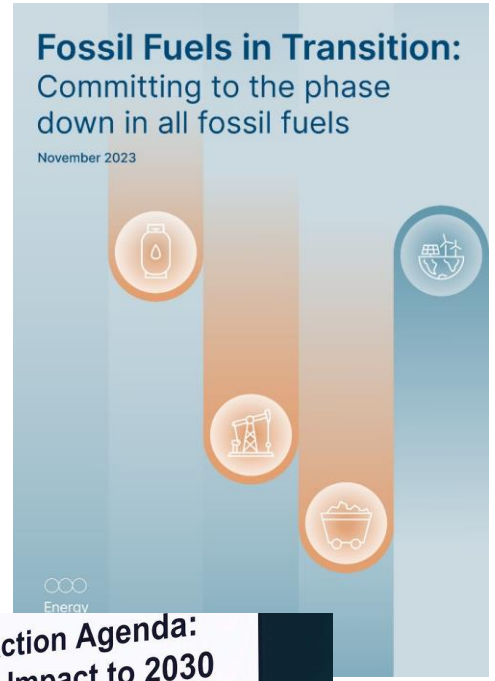
2022

COP27 SHARM EL-SHEIKH EGYPT 2022

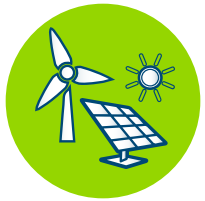


2023

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.

Proposed focus for COPs 29, 30 & 31

	COP29 Baku Azerbaijan	COP30	COP31
Partners:		SYSTEMIQ iCS transição energética	Australian Industry Energy Transitions Initiative 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**

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MISSION POSSIBLE PARTNERSHIP

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The climate debate is highly **politicised and polarised** as we move from ambition to action. **Disinformation remains rife and fuels the anti-net-zero narrative & back-tracking on commitments.**

German minister threatens 'indefinite driving bans' on weekends POLITICO

New Zealand to push through law to reverse ban on oil and gas exploration Reuters

Japan Must Curb Clean Power Reliance, Warns Leadership Candidate Bloomberg UK

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