



Energy  
Transitions  
Commission

# ETC Comms Club

8<sup>th</sup> July 2025

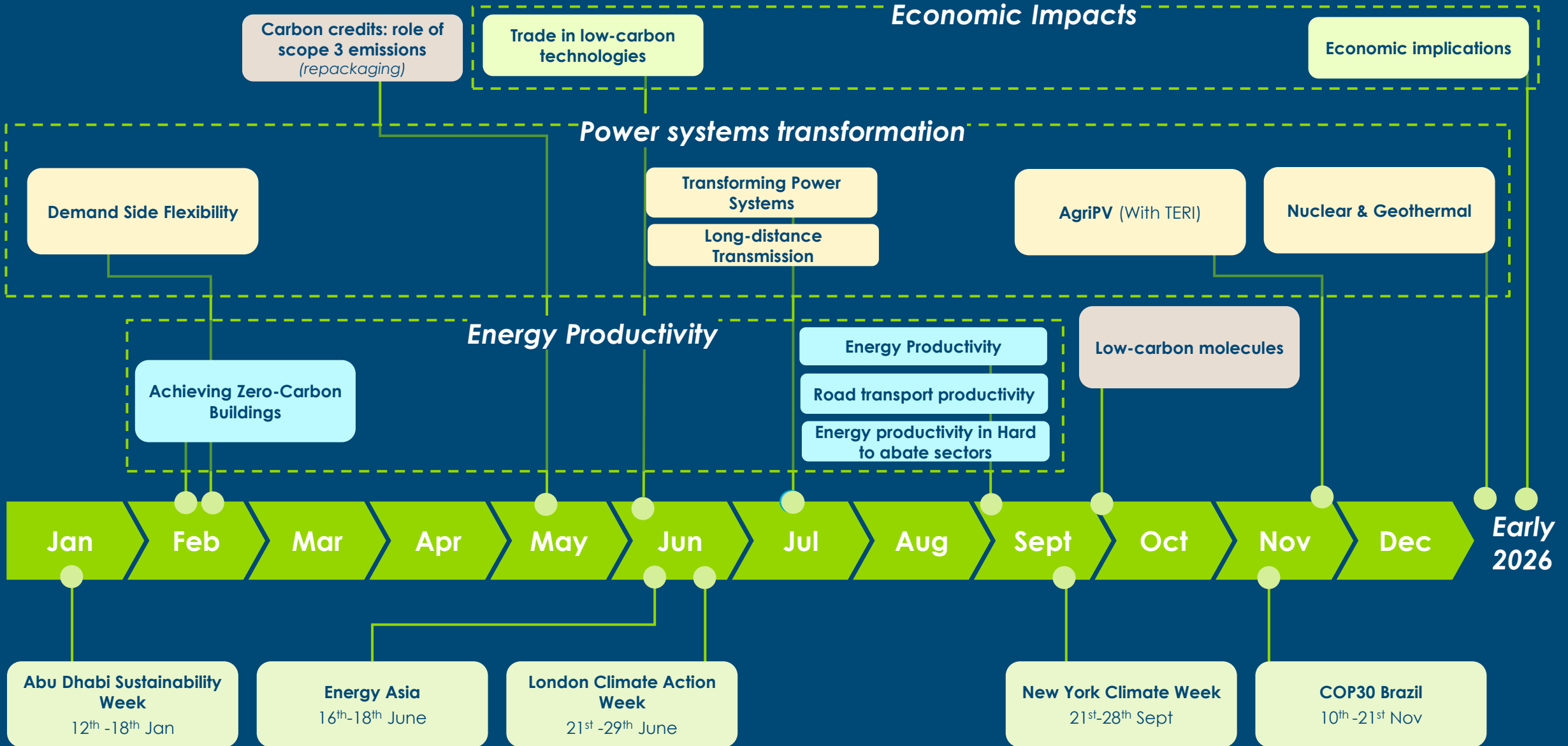
13.00 – 14.00 UKT

## Agenda

- **Welcome and Reminder of ETC Programme Schedule**
- **Communications planning for the *Power systems transformation report*** – *Caroline Randle, ETC Director of Communications*
- **Key messages from the report** – *with guest speaker Min Guan, ETC Head of Systems*
- **Q&A: Power Systems report** – *All*
- **ETC presence at climate events** – *Shane O'Connor, ETC Engagement and Advocacy Lead*



# 2025 ETC programme schedule



# Communications Plan: Power Systems Transformation



# Objectives

## To evidence that power systems:

- with high-shares of renewables (over 70%) are technically and economically possible
- can operate and balance with existing solutions
- can deliver system stability and round-the-clock electricity

## And by doing so, convince policymakers, businesses and investors to prioritise:

- scaling wind and solar rapidly, ensuring appropriate planning and investment to enable the lowest-cost transition
- expanding and modernising grids to provide a resilient clean energy system
- reforming power markets to lower consumer costs and attract investment,
- workforce and supply chain bottlenecks
- minimising consumer cost impacts



## What success looks like

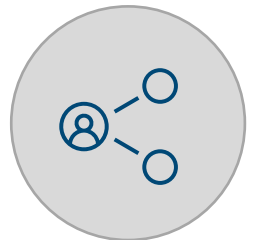
**ETC's report is seen as** a robust and holistic global analysis on wind and solar dominated clean power systems, and an evidence base for policy and investment.



Key insights **are used** in **conversations with policymakers and energy industry groups** about power systems design



ETC members value this analysis as a meaningful contribution and **support dissemination of key messages.**



# Key Considerations



**This is a major ETC report.** We aim to make a strong initial impact while ensuring longevity through ongoing communications campaign(s)



**Mis/disinformation and the anti-net-zero lobby.** This is an opportunity to counter with an evidence-based perspective



**Spain power outage:** has provided detractors with opportunity to question reliability of renewables



**Content rich:** launch with clear topline messaging & then amplify key messages via on-going campaign approach



**Extending our reach:** ETC focus is Tier 1 international media, wider dissemination will require support



# Target Audience

## Primary

### Policy makers and influencers:

- Engagement at regional and country levels
- Key stakeholders include: NEA (China), DG Energy (EU), MNRE (India), AFREC (African Union), Latam (OLADE)

### Finance and investors:

- MDBs and public finance institutions
- Sovereign wealth funds and pension funds
- Commercial and investment banks
- Green finance initiatives (e.g. World Bank, GFI, GPF)

### Energy organisations:

- IEA, IRENA, GRA, International Solar Alliance, GWEC, Global Solar Council, CEM/Mission Innovation, UNFCCC

### Corporates:

- Clean energy companies
- Hard-to-abate sectors, including industry and transport

## Secondary

### Economic and trade organisations:

- Organisation for Economic Co-operation and Development (OECD)
- United Nations Conference on Trade and Development (UNCTAD)
- United Nations Industrial Development Organization (UNIDO)

### Industry groups:

- World Business Council for Sustainable Development (WBCSD)
- World Business Manufacturers Council (WBMC)
- International Chamber of Commerce (ICC)
- World Economic Forum (WEF)

### Academia:

- Grantham Institute (LSE), Potsdam Institute, Tsinghua University, IIT Delhi & IIT Bombay, MITIE, Oxford Zero.

### Regional partners:

- ETC Network



# Media Targets

## International Tier 1 Broadcast and Print

EL PAÍS POLITICO

BBC

FRANCE 24

CNBC

EURACTIV

CGTN The Guardian

WSJ

THE TIMES

TRT

The Economist

FINANCIAL TIMES



## Energy and Environment Trade

PROMOTING ENERGY EFFICIENCY  
**Energy**  
in Buildings & Industry EIBI

edie  
driving sustainable business.

RENEWABLE ENERGY MAGAZINE  
At the heart of clean energy journalism

UtilityWeek

Energy.

BusinessGreen

THE ENERGY INDUSTRY TIMES

## Podcast targets

modo

INSIDER'S  
GUIDE TO ENERGY

Watt Matters  
THE FORESIGHT ENERGY TRANSITION PODCAST

ENERGY UNPLUGGED  
By Aurora Energy Research

REDEFINING ENERGY  
Icons: solar panel, battery, wind turbine

POLITICO ENERGY

# Transforming Power Systems

July



ETC underscores that it is technically and economically possible to operate and balance power systems with high shares of wind and solar (e.g. 70-80%+) through technologies existing today, delivering system stability and round-the-clock electricity.

Recent Spain and Portugal blackouts has put grid resilience high on the news agenda, and we have used this to comment as a "trusted" source and preview the Power Systems work

Iberia mess places timely focus on grid resilience



Europe's first grid crisis may not be its last



Massive blackout reignites culture war over the future of nuclear energy in Spain



The great Iberian power cut need not spell disaster for renewables



We have briefed:

- **Journalists**, including The Economist, Financial Times & Reuters
- **Media panel with GSCC - 30 Tier 1/European media**

And spoken about this report to:

- **Chris Stark**, Head of UK's Mission for Clean Power and DESNZ
- Climate Action's **Global Clean Power Taskforce**

Preview campaign will continue in build-up to launch in socials, media, events (including LCAW) media and to partners.

During preview period, ETC will work on developing media ready messaging and materials to tell and sell the story.

# Overview of the comms programme and Member Support



## Pre-launch

June – July

- **Message & material** development
- **Press release** distribution
- **Media briefings** (embargoed)
- **Direct** Engagement
- **Member** Engagement
- **Preview:** LCAW, Spain power outage

### Member Support

- Providing spokesperson quotes
- Press office support
- Social media support

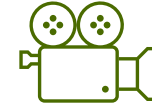


## Launch

29<sup>th</sup> July – onwards

- **Media briefings** & follow up
- **Social media** campaign
- **ETC Matters**
- **Direct** Engagement

- Social media amplification
- Press office support
- Local media sell-in/follow up



## Autumn campaign

September to November

- **Socials**
- Traditional **media**
- **Op-eds**
- Direct **engagement/partnerships**
- **Events**
- Digital **storytelling**

- Joint events and webinars
- Video and digital campaigns
- Social media and traditional media outreach



## Agenda

- Communications campaign for the *Power systems transformation report*
- **Key messages from the report** – with guest speaker Min Guan, ETC Head of Systems
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# Key messages from forthcoming ETC report on Power Systems Transformation

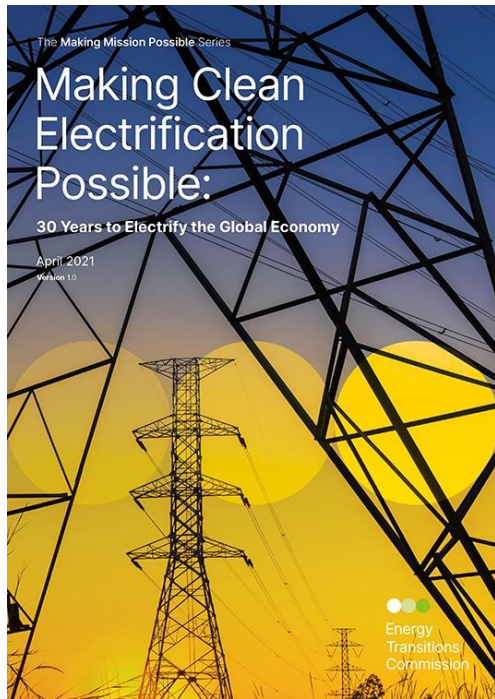


# Delivering clean power systems: the ETC's body of work

2021

2022-2024

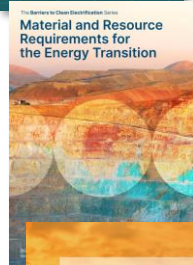
2024/25



**Streamlining planning and permitting to accelerate wind and solar deployment**



**Better, Faster, Cleaner: Securing clean energy technology supply chains**

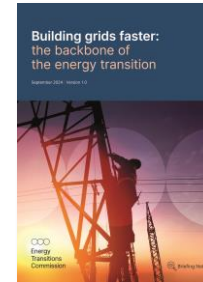


**Material and Resource requirements for the Energy Transition**



**Overcoming Turbulence in the Offshore Wind Sector**

## Series and Major report on Power Systems transformation



**Building Grids Faster: The backbone of the energy transition**



**Demand side flexibility – unleashing untapped potential for clean power**



**Long-distance cables: how greater transmission can accelerate the clean power transition**  
**Coming in July**



# There are 3 key questions on power systems with high shares of wind and solar

## 1) Technical operation challenge

Can you operate an electricity system with high shares of wind and solar without technical challenges? Including issues with frequency regulation, voltage control, and system inertia?

8 May 2025

Iberian Peninsula blackout proves the need for grid resilience

## 2) Balancing systems at all durations

What to do when the sun does not shine and the wind does not blow? How can we balance supply and demand in a low carbon way across days, weeks, months, and years?

NEWS

UK confirms cap-and-floor mechanism for long-duration energy storage from 2025

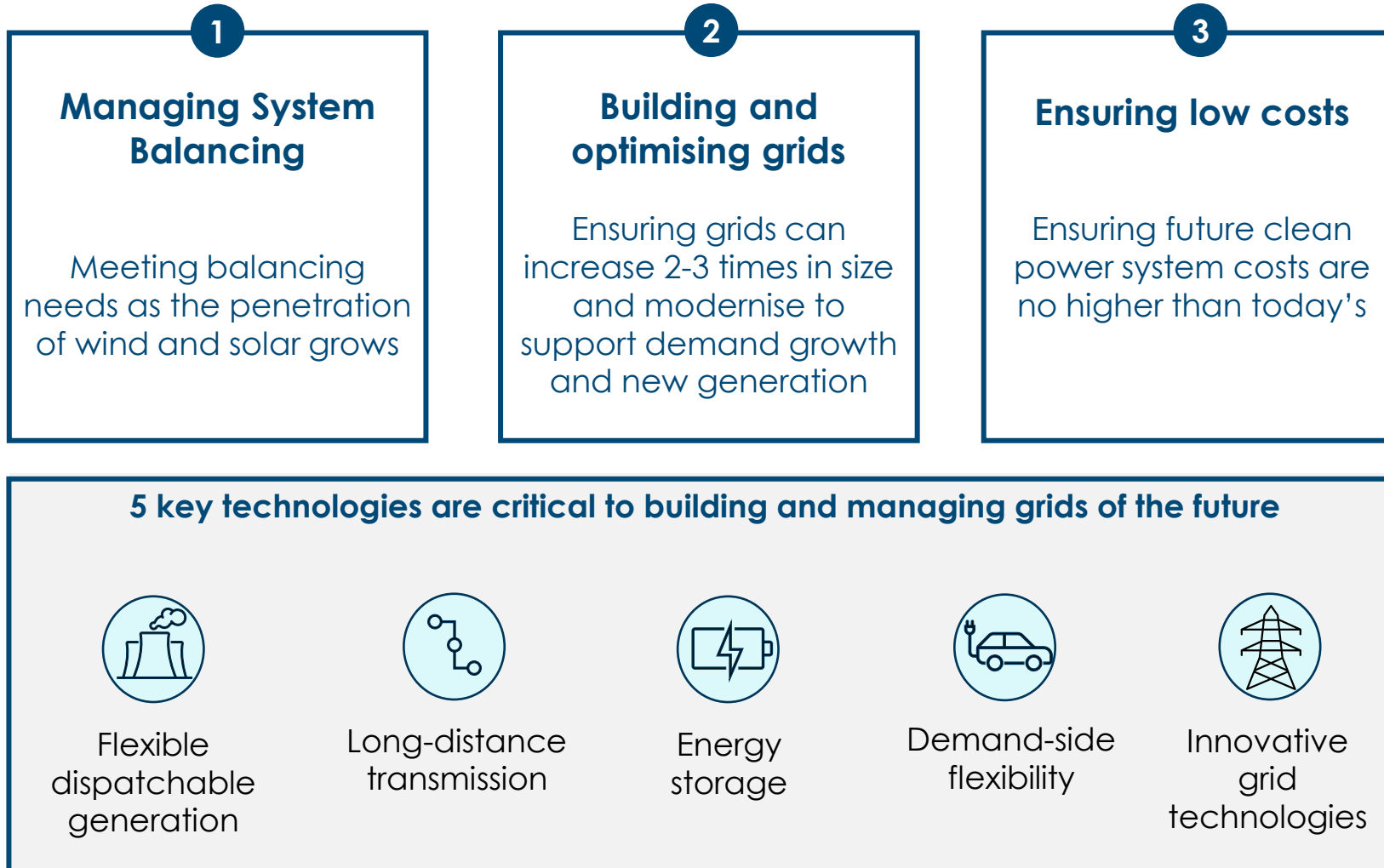
## 3) Cost concerns

Can the transition to a system based primarily on wind and solar be cost competitive, also including the expansion of the grid required?

Almost nine in ten Britons are concerned about energy prices



# The ETC Power Systems Transformation report seeks to answer these questions, using the following structure



# New insights from this report

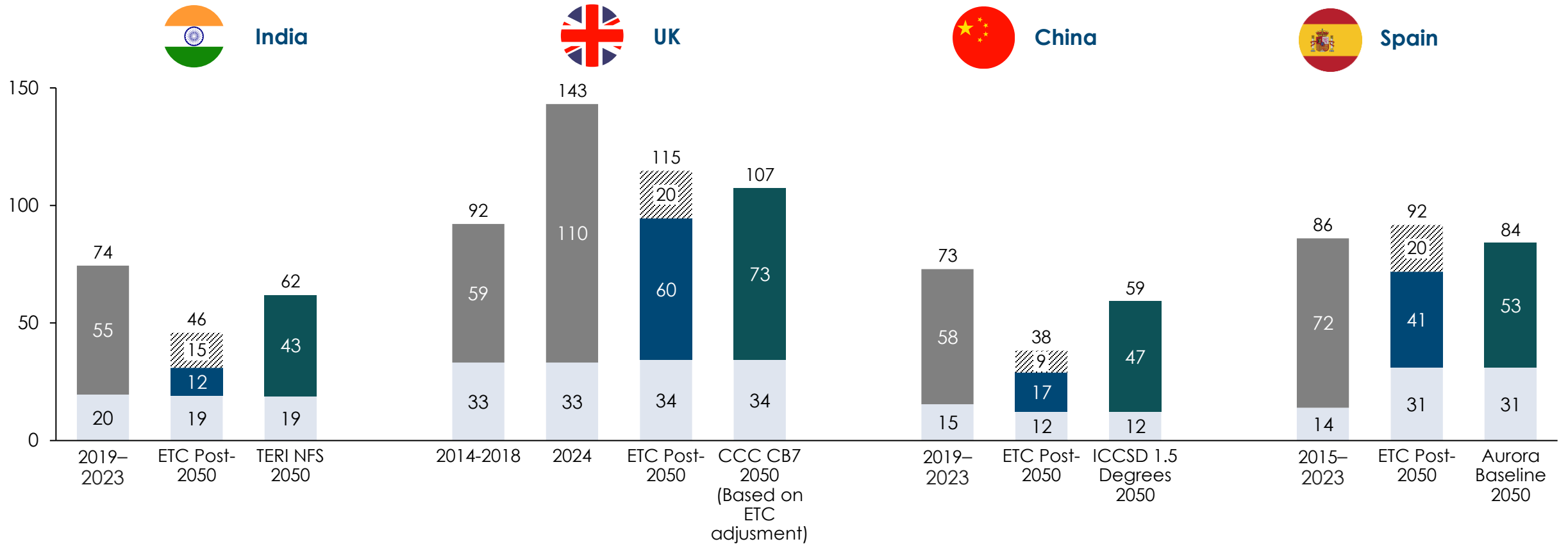
- 1** It is technically and economically possible to operate and balance power systems with high shares of wind and solar (e.g. 70-80%+) through technologies existing today. **The cost of each system varies significantly based on whether it is wind (“windbelt”) or solar (“sunbelt”) dominated**
- 2** **Wind dominated systems will require more ultra long duration balancing – where more gas turbine capacity could be required** (regardless of natural gas or hydrogen usage) within strict guidelines
- 3** **Up to 30% of all global power demand could be a flexible system asset (through demand-side flexibility)**, key bottleneck is how to incentivise deployment and adoption, and guarantee reliability
- 4** **Long-distance transmission from low-cost renewable regions can be a cost-effective source of flexibility where politically feasible**
- 5** **Grid costs per kWh are unlikely to materially change despite investments potentially increasing by 2-3x over the next 25 years**, as long as the user base expands in line with planning and innovative grid technologies and demand side flex are utilised. Need to ensure pace of electrification at same pace as decarbonisation.



# 1 System generation, balancing, and grid costs could be competitive with current wholesale prices

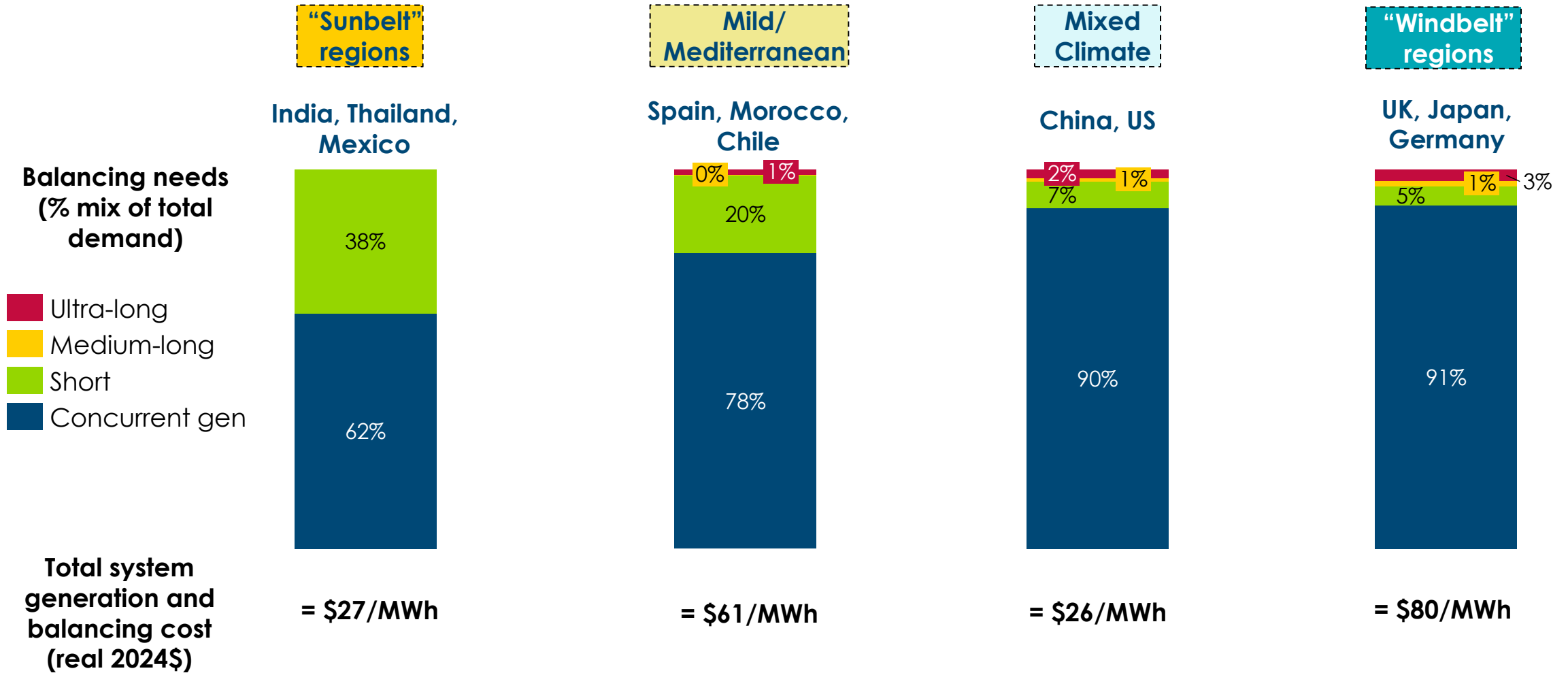
**Total system costs (generation, balancing, and grids), recent vs post-2050**  
\$/MWh (real 2024\$)

Average wholesale power prices
  Dispatch model generation and balancing  
 Cost of meeting balancing needs
  T&D costs (ETC est.)  
 Wind/solar



# 1 System balancing needs and costs differ in sunbelt vs. windbelt regions

Balancing needs and costs differ by region and resource type:




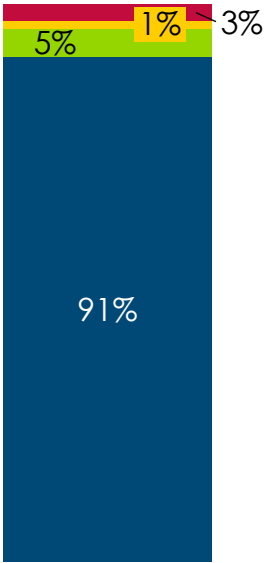

Source: Systemiq analysis for the ETC (2025)

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## 2 Ultra-long duration balancing costs add significantly to wind dominated systems

### Total system generation costs for a 2050 system, Northern Latitude

\$/MWh (real 2024\$)

Scenario	Balancing variability (% mix of total demand)	Generation and storage deployment and costs	System generation cost (\$/MWh, real 2024\$)
 Core scenario, UK	 <p>           ■ Ultra-long ■ Short            ■ Medium-long ■ Wind and solar         </p>	<b>Generation:</b> 778 TWh at <b>\$45/MWh</b>  <b>Short storage:</b> 26 TWh at <b>\$80/MWh</b>  <b>Medium-long:</b> 7 TWh at <b>\$170/MWh</b>  <b>Ultra-long:</b> 16 TWh at <b>\$460/MWh</b>	 <p>           ■ Ultra-long ■ Short            ■ Medium-long ■ Generation         </p>

While ultra-long duration **only makes up 3%** of the balancing requirement in this archetype, **it makes a significant addition (\$14/MWh) to final generation costs**

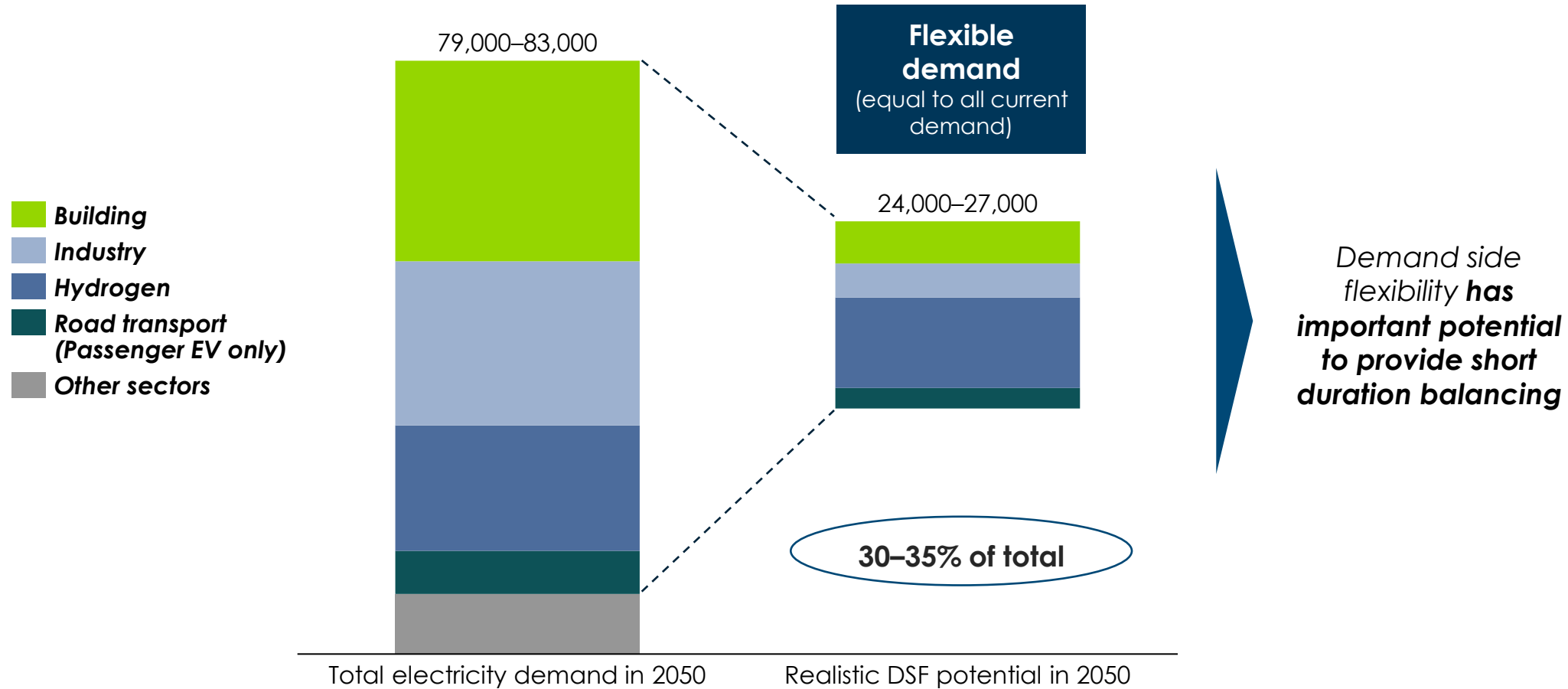
Note: Generation costs are derived based on the generation mix using BNEF 2050 mid CAPEX and OPEX estimates, alongside capacity factors from the average weather year supply scenario (representing the long-term average), 30-year project lifetimes, and real WACC of 4%, 5%, and 6% for solar, onshore wind, and offshore wind, respectively. Storage costs are derived using the LCOS methodology outlined in this report, with the input electricity cost for all storage technologies set to be the archetype's generation cost per MWh. Efficiency losses for storage technologies are included (assumed efficiencies are 90% for short, 60% for medium-long, 40% for ultra-long). Surplus generation arises from overbuild required to meet balancing needs and is included in both energy and cost calculations. Cost estimates are in 2024 US\$/MWh and reflect levelised costs of generation and storage, including contributions<sup>21</sup> from surplus energy. Source: Systemiq analysis for the ETC; BNEF (2025), LCOE: Data Viewer.

### 3 Around 30% of overall electricity demand in 2050 could be flexible

#### Global electricity demand and DSF potential, 2050

TWh

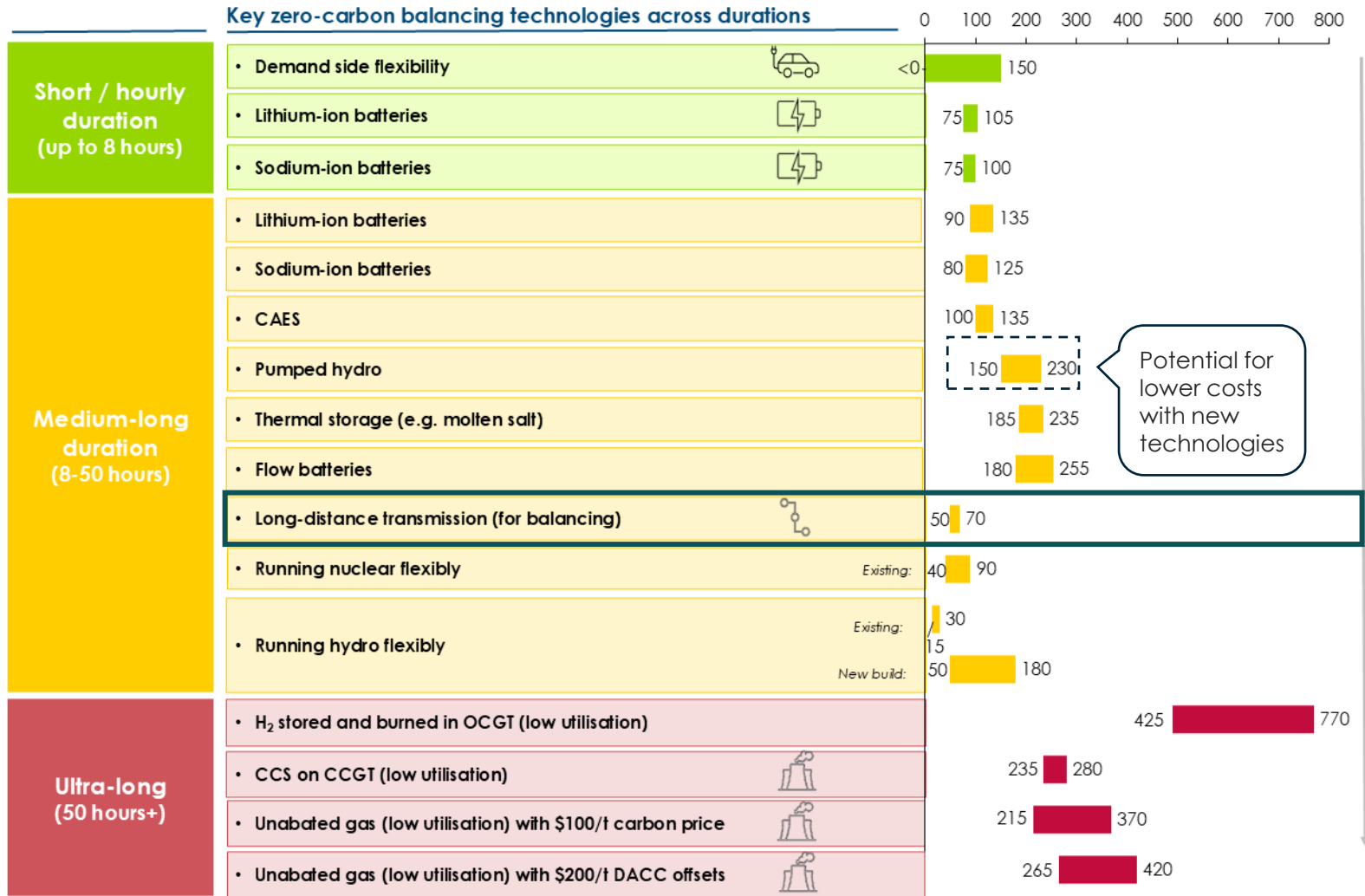
Ranges based on ETC scenarios ACF and PBS



# 4 Interconnectors are a very cost effective flexibility source if feasible

Cost comparison of balancing technologies – \$40/MWh  
\$/MW

Cost of delivered electricity in 2035



## Key takeaways

- **Short duration:** Demand-side flexibility and lithium-ion batteries already cost competitive vs fossil in some cases
- **Medium-long duration:** mix of options, pumped hydro and long-distance transmission could be most competitive
- **Ultra-long duration:** Costly, as high capex assets at low utilisation; a restricted role for unabated gas with clear guidelines may be the most pragmatic near-term path.

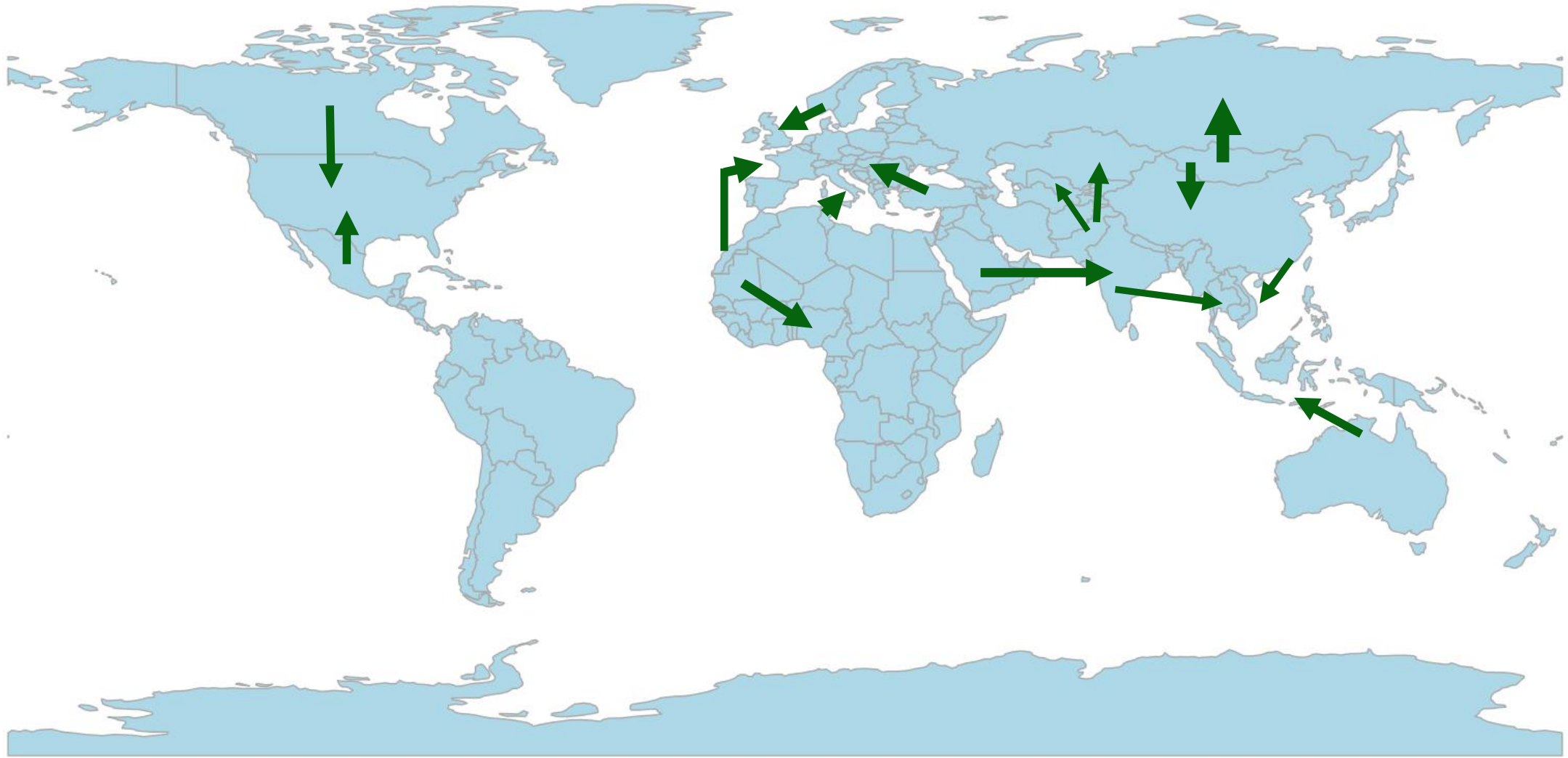


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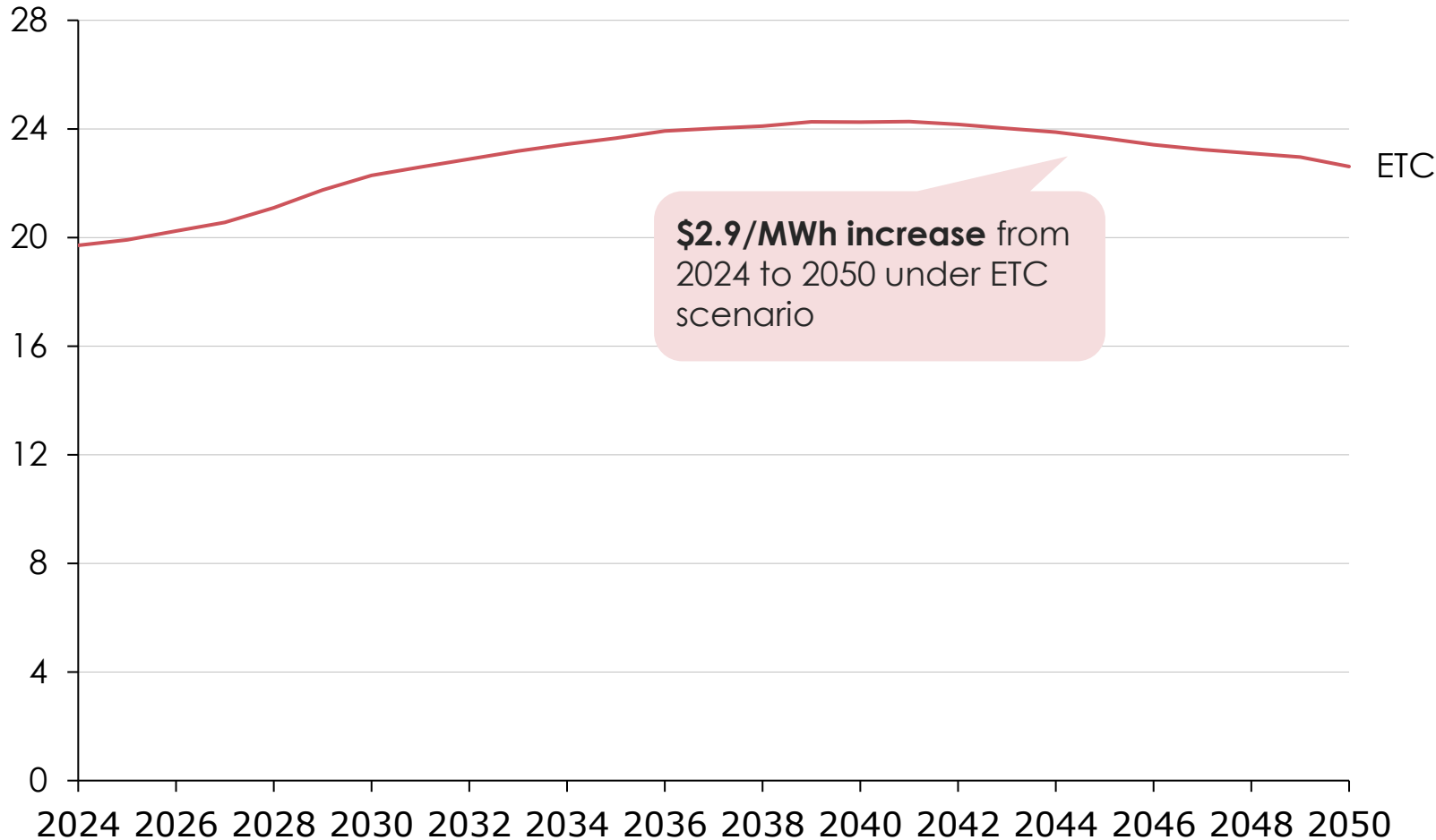
# The ETC identified top 15 interconnector projects, assessed by cost effectiveness and total volume traded



# 5 Grids will need to expand, optimisation is key: costs per MWh will only increase slightly to 2050, but can be reduced if we maximise flexibility

## Grid Capex costs (transmission & distribution) per demand unit, global, 2024–2050

\$/MWh (real 2024\$) for payments per electricity demand; interest rate = 5%; 30-year repayment timeline



- **Grid capacity must grow by at least 50% by 2050** to meet electrification needs, even with all efficiency and optimisation measures in place
- The **initial increase in cost per unit of demand** is due to the upfront investments needed to build and reinforce the grid infrastructure in line with rising electricity demand.
- **The grid cost per unit of demand then decreases** because the fixed costs are spread over a larger volume of electricity consumption.
- **Grid optimization measures could further reduce** the need for additional grid build, lowering overall costs.



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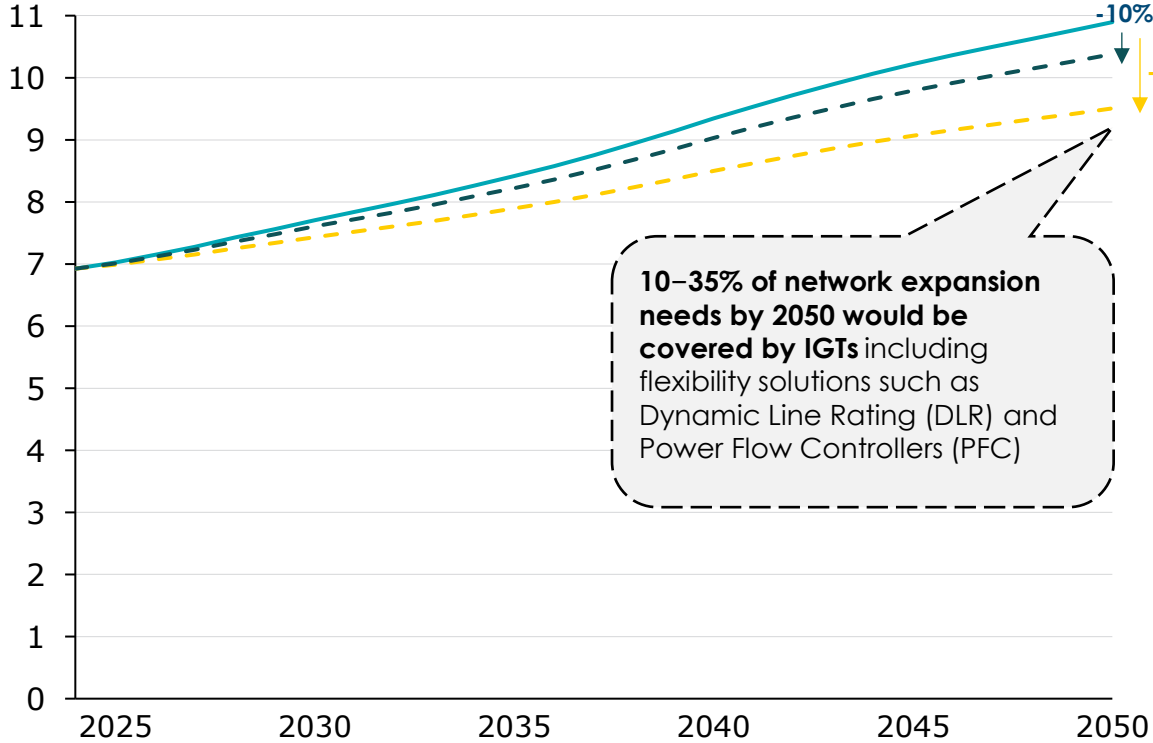
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# Innovative Grid Technologies could significantly reduce grid build & CAPEX

## Benefits of IGTs compared to network expansion needs

Million km, Europe, 2024–2050

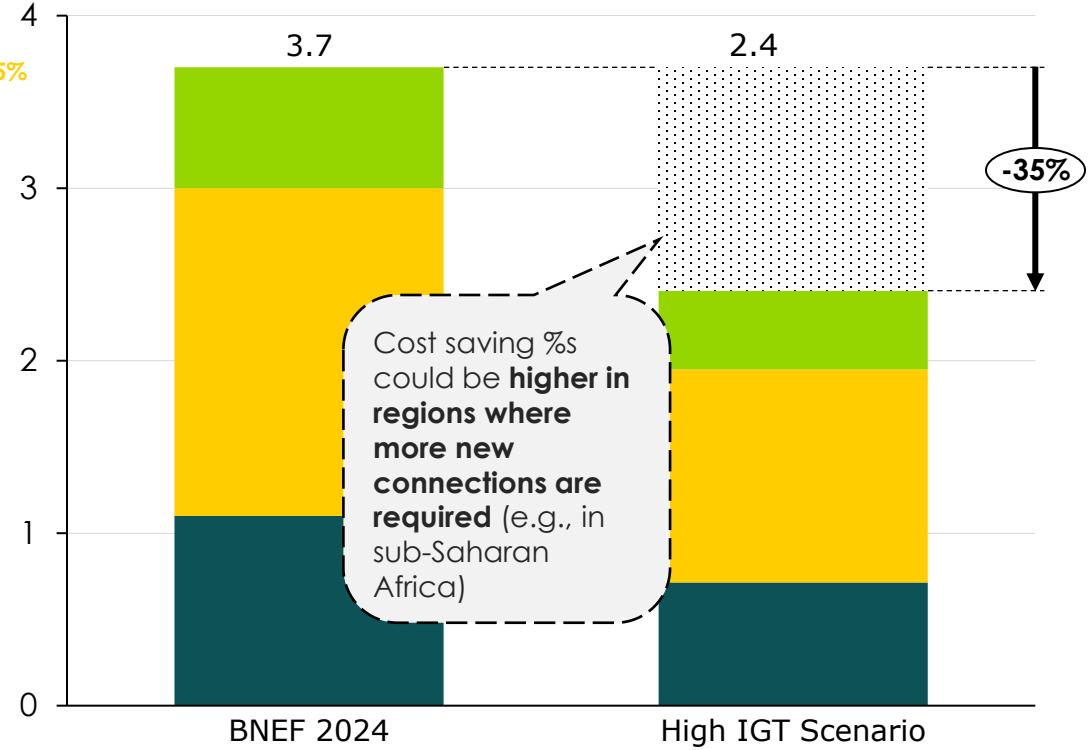
- BNEF 2024 NEO NZS
- - High IGT Scenario
- - Low IGT Scenario



## Cumulative investment in new power grid system, Europe

\$ trillion (real 2024\$), 2024–2050, based on BNEF

- Avoided grid expansion costs
- System reinforcements
- New connections
- Asset replacements



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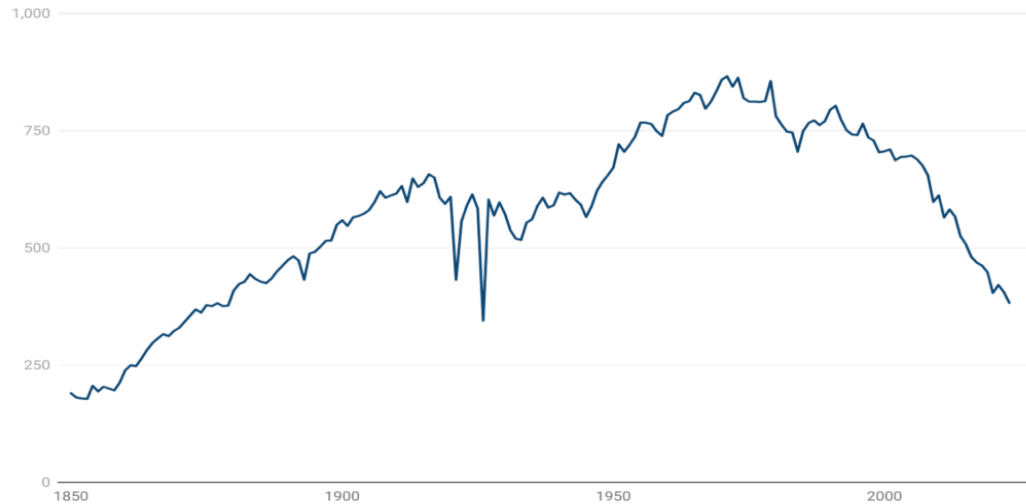
# 5 Balancing electrification and decarbonisation: the risks of a mismatch

## Developed Countries e.g. UK



### UK territorial greenhouse gas emissions, 1850-2023

MtCO<sub>2</sub>e

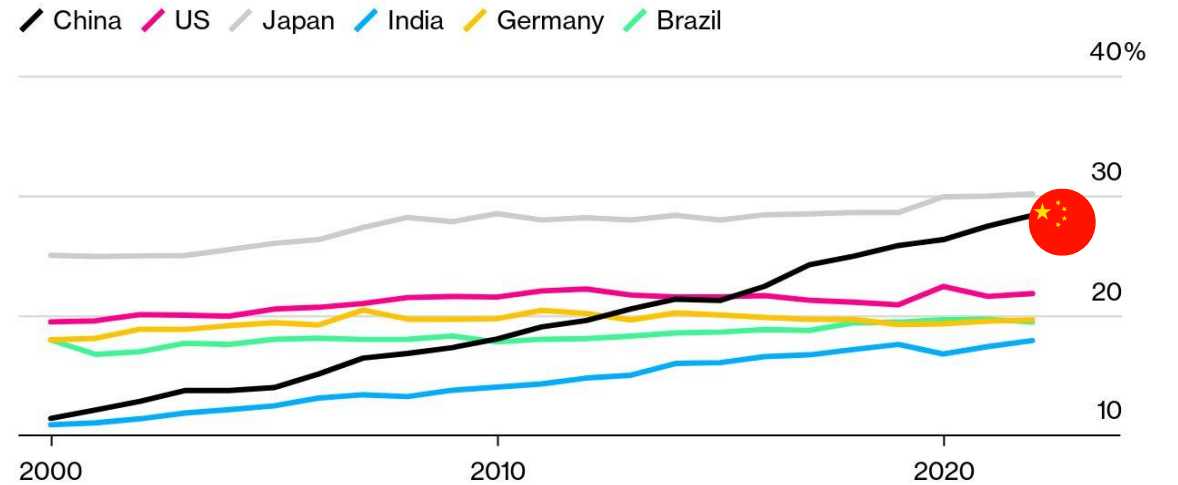


- **Decarbonisation occurring rapidly** in countries like the UK from 500g CO<sub>2</sub> per kWh in 2010 to 125g in 2025
- However, **electricity demand is stagnant** – from 360 TWh in 2010 to 320 TWh in 2024
- **The risk** – grid costs spread over fewer units, rising unit costs risk disincentivising electrification

## Developing Countries e.g. China

### Electricity's share of final energy consumption

%



- **Electrification rising** due to industrialisation and adaptation (e.g. rising AC use)
- But **supply is not yet decarbonised**, with China's power intensity remaining over 500g CO<sub>2</sub>/kWh
- **The risk** – growing demand locks in high emissions unless supply transition accelerates



# Six key enablers for power systems transformation

## Strategic vision & planning

- **Smart targets for deployment** – including renewables, grids, energy storage, and flexibility.
- **Accurate models and forecasting** – to help set targets and enable integration of new technologies.
- **Political will for the transition** – To enable both phasing down of fossil, and plans for flexibility deployment (including across borders).
- **Anticipatory funding** – shifting from short-term reactive investment to anticipatory, long-term whole-system planning.



### Market design

- Market access
- De-risked revenue streams
- Pricing signals (incl. locational pricing, carbon pricing)



### Grid regulations

- Reform of grid fees
- Evolution of connection rules
- Modernisation and harmonisation



### Data, AI and smart grids

- Data and AI modernisation
- Advanced metering and digitalisation



### Supply chain and workforce

- Supply chain concerns
- Workforce education



### Consumers

- Consumer engagement and trust-building



# Q&A



## Agenda

- **Communications campaign for the *Power systems transformation report***
- **Key messages from the report** – with guest speaker *Min Guan, ETC Head of Systems*
- **Q&A: Power Systems report** – *All*
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## Adair speaking at Energy Asia, Kuala Lumpur



### June 15-17, Kuala Lumpur

- Sunday closed door session - Inaugural Energy Asia Global Leadership Executive Forum
- Monday plenary session
- Tuesday engagement with the young entrepreneurs
- Tuesday CNBC AI Event

### June 18, Singapore

- Meeting with President Tharman Shanmugaratnam & climate experts

### June 19-20

- Rose to Jakarta



# London Climate Action Week was a major success

## ETC & Kiko “Art of the Possible”



**KIKO** Energy Transitions Commission

Kiko Ventures and The Energy Transitions Commission are pleased to invite you to

# The Art of the Possible

*The underappreciated potential for further technology innovation in mitigating climate change*

**When**  
Wednesday 25<sup>th</sup> June 2025

**Where**  
IP Group, Havas Building, 8<sup>th</sup> Floor,  
3 Pancras Square, King's Cross, London,  
N1C 4AG

**Speakers**

- Keynote speech:**  
Lord Adair Turner
- Technology deep dive:**  
Dr Robert Trezona
- Startup pushing the frontier:**  
Dr Paul Barrett
- Startup pushing the frontier:**  
Dr Sai Shivareddy
- A fireside chat with:**  
Sir Warren East

**4:30pm – Technology showcase**  
**5:30pm** Meet climate innovators pushing the boundaries of the possible in cleantech over light refreshments

**5:30pm – Presentations**  
**7pm** Hear from climate and technology leaders on the possibilities for technology to speed the transition to a zero-emissions future

**7pm – Networking drinks**  
**8pm** Please join us for drinks and canapés, weather permitting served on the balcony overlooking London's Knowledge Quarter

## Mission 2025 Guildhall “New Economy Rising”



# New York Climate Week, 21-28 September

- Adair will be attending (potentially with 1 additional staff)
- Plans are in early stages, we are exploring:
  - *Mission 2025 events, perhaps with Christiana Figueres*
  - *Adair giving presentation on whataboutism, i.e. a summary of insights from our barriers to clean electrification series – challenges to the transition can be overcome*
  - *Continued opportunities with Global Renewables Alliance, Mission Possible Partnership, Duke University, WMBC, GSCC*
  - *Wider events with members*



**We are still in early stages of planning for NYCW and are very open to participating at events hosted or recommended by members**



# COP30 Belém, 10-21 November

- Adair will be attending (small ETC team on the ground)
- The conference will be hosted in Belem, with a Blue and Green zone on site, not split as some have suggested.
- Accommodation currently very limited. A 'Hosting Platform' is planned to be launched shortly to provide availability from hotels to military buildings and cruise ships
- Plans are in early stages, we are exploring:
  - *Speaking at Buildings Pavillion for the UN Cool Coalition*
  - *Potential support for the MPP/ITA campaign*
  - *Continued opportunities with Mission 2025, WMBC, ECIU, GSCC, Global Renewables Alliance*
  - *Wider events for members*



**We are still in early stages of planning for COP30 and are very open to participating at events hosted or recommended by members**



# Q&A

