2025

February

# Balancing Economic Growth and Climate Action in the Energy Sector

CEO Roundtable White Paper

The Al-Attiyah Foundation

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The Al-Attiyah Foundation convened its first CEO Roundtable of 2025 to discuss the challenge of balancing economic growth with climate action in the energy sector. Industry leaders, policymakers, and experts exchanged insights on technological innovation, global governance, investment strategies, and regulatory frameworks. Discussions underscored the urgency of aligning economic growth with environmental sustainability while acknowledging the complexities of geopolitical shifts and market realities.

## CEO WHITE PAPER

**H.E. Abdullah bin Hamad Al-Attiyah created the Foundation as a platform for knowledge exchange and to support the global community in the quest towards a sustainable energy future.**

**The CEO Roundtable is an opportunity for CEOs, Foundation members and partners to meet in one room and examine pertinent energy and sustainable development topics.**

# 03 OPENING REMARKS BY GUEST SPEAKERS

**Moderator:**

Mr. Axel Threlfall,
Editor-at-Large at Reuters

**Speaker**

Mr. Janos Pasztor,
Former UN Assistant Secretary-General on Climate Change

**Speaker**

Mr. Ovais Sarmad,
Former Deputy Executive Secretary of UNFCCC and UN Assistant Secretary-General

**Speaker**

Prof. Jacopo Torritti,
Professor of Energy Economics and Policy at Reading University

**Speaker**

Mr. Creon Butler,
Director, Global Economy and Finance Programme, Royal Institute of International Affairs, Chatham House

The Roundtable was moderated by Axel Threlfall, Reuters' Editor-at-Large. He started by introducing the chairman of the meeting, H.E. Dr. Mohammed Bin Saleh Al-Sada and invited him to make a few introductory remarks. H.E. Al-Sada welcomed all the guests and speakers to the Roundtable and brought regards from H.E. Abdullah bin Hamad Al-Attiyah. He commented on the challenges and implications that the theme of the Roundtable implied. He noted that climate change and economic growth are often perceived as opposing forces. The challenge lies in creating a sustainable balance that ensures energy security, economic prosperity, and environmental responsibility.

H.E. Dr Al Sada further commented that the United States' withdrawal from the Paris agreement will bring further yet to be known ramifications on the global outlook on climate change. While U.S. withdrawal has yet to take effect, the international community should expect the country's involvement in the multilateral climate change process to slow down immediately.

With these few words, H.E. Dr Al Sada then passed the floor back to Mr Threlfall to proceed with the discussions.

In his opening remarks, Mr. Threlfall emphasised that the Roundtable would explore strategies to integrate climate policies into business models, leveraging both governmental and private-sector initiatives to drive the energy transition. He stressed that economic growth and climate action cannot be viewed in isolation—both must go hand in hand to avoid long-term instability.

The discussion, he noted, would focus on balancing economic growth with climate


commitments, particularly in the energy sector. This long-standing debate raises key questions: What strategies can best foster economic growth while advancing climate goals? How can climate targets be met without stifling economic expansion? Is it possible to achieve growth without compromising environmental sustainability? Can it be done effectively, efficiently, and at the speed required? And do we fully recognise the urgency?

He also questioned whether governments and energy providers—some of whom were present—demonstrate the will to strike a sustainable balance, keeping in mind the UN Sustainable Development Goals (SDGs) for 2030. Achieving this, he concluded, demands a comprehensive approach that integrates technological innovation with effective policy.

Mr Threlfall then invited the guest speakers to make some introductory remarks.

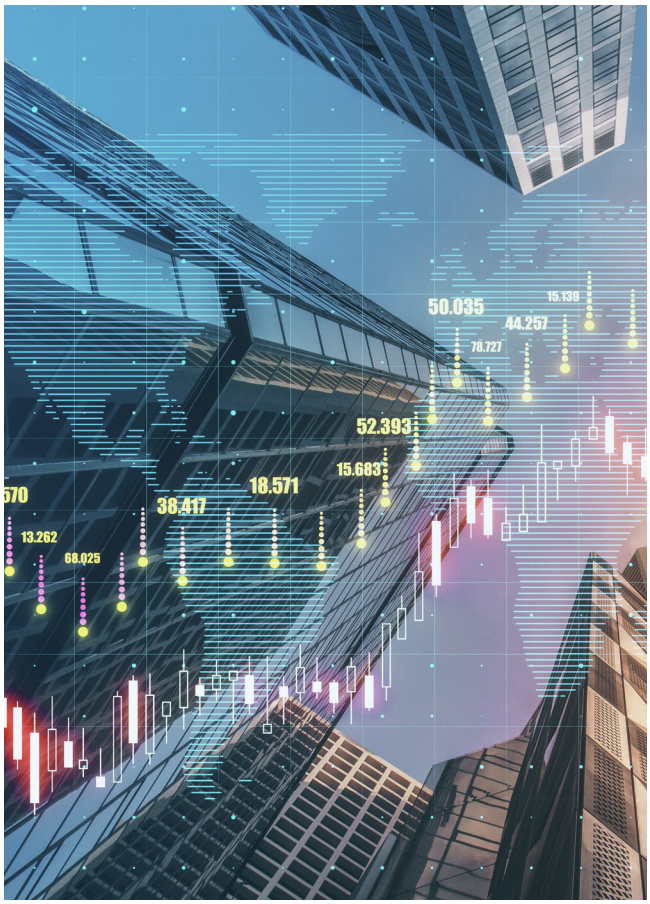
The first speaker was Professor Jacopo Torriti. His detailed presentation can be seen in Appendix A. Professor Torriti delved into the work in the UK of the Energy Research Demand Centre (ERDC), an organisation which focuses on understanding demand for fuels. The supply mix is continually changing and possibly getting more volatile (more peaks). Supply will therefore change "at the edges of supply". The challenge is therefore to build better flexibility into the supply system more efficiently. The benefits of flexibility are of the order of $ billions worldwide. However, political commitment is needed to expand supply flexibility. Professor Torriti cited the example of the new Labour government in the United Kingdom which is committed to promoting a flexible approach through the

electricity market reform, as demonstrated in its recently published Clean Power 2030 plan. According to the plan, flexibility needs to be four to five times what it is currently, or an increase from 2.5 gigawatts to 12 gigawatts. He said that this kind of political commitment is needed from energy ministers in order to have a set of policies that accommodate such ambitious commitment to flexibility.

The second guest speaker, Creon Butler, discussed recent political changes in the U.S. and their potential impact on the global climate dialogue. He noted that institutions such as the G7, G20, and WTO struggled to function effectively during the first Trump administration and expected similar challenges under the current one. Broadly speaking, much of the world shares common values on climate action, but a key issue remains—financing from both the public and private sectors. Some areas, such as emissions abatement and certain research initiatives, attract little to no private investment due to insufficient financial returns. Meanwhile, despite the strong moral imperative to act, major economies face budgetary constraints, making it critical to optimise available funding.

Mr. Butler highlighted the role of International Development Banks in addressing these challenges and emphasised the need for better data to maximise the impact of financial resources, including through blended or hybrid financing models. He suggested that public finance could assume greater risk to fill funding gaps. However, he pointed out a stark reality: investment in fossil fuel projects still far exceeds that in climate initiatives. While ramping up renewable energy investment remains essential, he stressed the importance of doing so efficiently and with greater transparency regarding the risks involved.

Janos Pasztor began by emphasising that we are living in challenging times, marked by a gradual shift away from a "rules-based world order"—a change that comes just as global stability is needed more than ever. He stressed that climate change impacts every aspect of life, from biodiversity and land use to public health. Its effects will be felt universally, across all areas of human endeavour. He pointed out that last year was the hottest ever recorded, as were the previous ten years. Looking ahead, we may one day consider 2024 relatively cool. Given this reality, the world must urgently transition away from fossil fuels and reduce emissions as quickly as possible—though some countries will need to move faster than others. While discussions and agreements on this transition continue, the global imperative remains clear: we must break from current practices.



Mr Pasztor argued that the core question is not whether to prioritise development or climate action, but rather how to pragmatically replace fossil fuels with non-fossil alternatives. This shift presents abundant opportunities through technological innovation. He pointed to "low-hanging fruit" in areas such as supply and demand management, efficiency improvements, grid modernisation, carbon capture, and carbon removal. However, the real challenge lies in transforming industry itself and rethinking the roles of both fossil fuel suppliers and consumers.

He also noted a sobering reality: even if all emissions were halted tomorrow, global temperatures would still rise slightly due to the inertia of the climate system, then remain elevated for decades. This means the devastating impacts we see today—including some already catastrophic—will persist for hundreds of years. Since the world is nowhere near stopping emissions overnight, the UN Environment Programme (UNEP) has warned that we have already reached the 1.5°C threshold and are on track for a temperature rise of 2.6°C to 3.1°C above pre-industrial levels by the end of the century. This analysis, he added, was completed before Donald Trump's second presidential term began in January 2025 and his climate policies took effect.

Faced with this dire scenario, Mr Pasztor outlined three interconnected options available to the global community:

1. Adaptation – Implement large-scale adaptation measures. While feasible for a 1.5°C world, this approach becomes impractical at 3.1°C. Reports from the Intergovernmental Panel on Climate Change (IPCC) highlight limits in funding, technology, and societal capacity to adapt at such extreme levels.

2. Cooling the Planet – Deploy technologies to actively cool the Earth on a regional or global scale. While such technologies exist, their long-term implications remain uncertain.

3. Decarbonisation – Prioritise deep emission reductions across all sectors. This must include elements of adaptation and planetary cooling as stopgap measures. However, current efforts remain insufficient, pushing the world toward an ever-narrowing path where geoengineering may become the only remaining option.

Fossil fuel producers, Mr Pasztor argued, must acknowledge the necessity of a clear transition away from fossil fuels. While setting rigid deadlines may not be practical—whether in a decade, a century, or beyond—the key is to recognise and commit to a definitive path forward. This transition requires collaboration between policymakers and industry leaders from countries that are highly dependent on fossil fuels, those with moderate reliance, and those that will continue to rely on them for the foreseeable future. By fostering strategic discussions, the global community can work toward a realistic roadmap that prevents the world from being "roasted" or "cooked."

Following Mr Pasztor's address, Ovais Sarmad introduced the concept of a BAINL world—a world that is Brittle, Anxious, Incomprehensible, and Non-Linear. He noted that this complexity affects everyday life and necessitates transformational change. Drawing a parallel to the shift in public attitudes toward smoking, he recalled that 15 to 20 years ago, people might have been smoking in the very room they were sitting in. Today, that is no longer the case due to widespread awareness of tobacco's dangers, which led to social and behavioral changes. Similarly, the world is now undergoing a comparable transition toward sustainable energy and growth. Sarmad expressed confidence in humanity's ability to develop solutions. However, he issued a stark reminder: the 1.5°C target was not a goal, but a limit—one that was meant to be maintained, not exceeded, by the end of the century. Yet, in 2025, we have already reached that threshold, and the devastating consequences are becoming increasingly visible worldwide. He urged the corporate world to act responsibly, emphasising that businesses that recognise the urgency of climate action will survive, while those that resist change risk obsolescence. History is filled with examples of companies that failed to adapt and disappeared as a result. With increasing regulatory scrutiny, corporate casualties are inevitable. Ultimately, he stressed that innovation is the key to progress. Many opportunities already exist to drive change, and rather than viewing climate action as a burden, forward-thinking companies should see it as an opportunity for sustainable growth and long-term success.

After the guest speaker presentations, the moderator opened the conversation to the audience. Below is a summary of the key points discussed:

The discussion began by questioning whether the ambition of fossil fuel companies has diminished and whether climate action has stalled. Most respondents believe that progress has not stalled, but rather, companies are adopting policies and strategies that integrate electrons, molecules, new fuels, and legacy programmes into their corporate frameworks. While cost inflation presents challenges, participants noted that societal opinion and regulatory pressures will ultimately drive change. It was also highlighted that companies cannot simply exit a market—doing so would only allow others to enter and fulfil demand.

Companies are addressing Scope 1 (emissions from sources that an organisation owns or controls directly) and Scope 2 (emissions that a company causes indirectly and come from where the energy it purchases and uses is produced) emissions in line with established GHG protocols and international corporate accounting and emissions reporting standards. However, Scope 3 emissions (emissions that are not produced by the company itself and are not the result of activities from assets owned or controlled by them, but by those that it's indirectly responsible for up and down its value chain) remain outside individual companies' direct control. Developing effective strategies and standards to manage Scope 3 emissions requires a societal approach. While current regulations in this area is lacking, the consequences of inaction are already becoming evident.

A key question raised was whether it is possible to balance economic growth with climate action, particularly for fossil fuel producers. The consensus was that innovation will be critical in achieving this balance. Fossil fuels should not be viewed as the enemy of climate action but rather as an opportunity to utilise existing energy source more effectively. However, given limited research funds, the

debate arose as to whether resources should be prioritised for renewable solutions rather than making fossil fuels "greener."

The discussion also explored how best to address a warming planet. Even if emissions are reduced immediately, global temperatures are expected to rise until at least 2045. The primary focus, therefore, should be on emission reduction measures. Participants acknowledged the need for continued innovation and research, particularly as AI is enabling the scaling up of identified solutions with relatively low financial investment compared to broader government expenditures.

Participants identified several actions governments could take to support climate goals:

- Adjusting pricing solutions to encourage flexibility and increase competition in supply.
- Producing more market-oriented solutions via tariffs and using them strategically.
- Facilitating the testing of new solutions through strong government backing.
- Leading public-private financing initiatives by assuming more risk.
- Accelerating the implementation of carbon pricing mechanisms.

The discussion then turned to the role of nuclear power in the energy transition. There is considerable speculation about the potential of Small Modular Reactors (SMRs), which could reduce costs and construction times. However, the cost of electricity from SMRs remains high. Participants emphasised that nuclear power is a long-established technology and, by many measures, one of the safest ways to produce energy.

While the COP process has delivered only modest progress over the past 30 years, participants stressed that the international community cannot afford to abandon the 1.5°C target or the multilateral process. Investors should continue funding technologies that drive innovation and entrepreneurship in climate solutions.

Concerns were raised about the U.S.'s withdrawal from the Paris Agreement, although it remains a party to the UNFCCC. Additionally, 30 US states continue to abide by the agreement, and over $1 billion in federal funding has already been awarded under the Inflation Reduction Act, which cannot be revoked.

Despite setbacks, progress has been made since the Kyoto Protocol, particularly in the development of the Clean Development Mechanism, which has driven advancements in solar energy in China and wind energy in India.

## 1. THE IMPACT OF GEOPOLITICAL SHIFTS ON CLIMATE COMMITMENTS

- The US withdrawal from the Paris Agreement has created uncertainty in global climate efforts. One speaker noted, "The fragility of international agreements is evident; we must build resilience into our climate strategies."
- Rising trade protectionism and geopolitical tensions are challenging international climate cooperation.
- The role of multilateral development banks and public finance is under scrutiny, as climate funding faces constraints. "There is no free money," one expert said. "Public finance must be deployed strategically to leverage private investment."

## 2. INVESTMENT IN RENEWABLE ENERGY AND DEMAND FLEXIBILITY

- While investment in renewables is increasing, ensuring grid stability and demand-side flexibility remains a challenge. "We are transitioning to an electrified economy, which requires smarter grid solutions," a participant remarked.
- Policymakers must incentivise demand-side flexibility to reduce reliance on fossil fuel peaking plants. "The challenge is not just producing clean energy but using it efficiently," noted one energy expert.

## 3. THE ROLE OF OIL & GAS COMPANIES IN THE TRANSITION

- International Oil Companies (IOCs) have set long-term net-zero targets but require immediate regulatory support to drive large-scale transformation. "Regulation must lead, but industry also has a responsibility," said one executive.
- The debate over Scope 3 emissions underscores the need for carbon pricing mechanisms. "We need carbon pricing to reflect the true cost of emissions and incentivise cleaner alternatives."

## 4. THE FUTURE OF CARBON PRICING AND REGULATORY FRAMEWORKS

- Carbon pricing remains a contentious yet effective tool for decarbonisation. "A global carbon pricing system could be transformative, but political will is lacking," an expert argued.
- Governments must act as risk-takers, investing in R&D and infrastructure to enable an efficient transition. "Without public-sector investment, private industry alone cannot shoulder the transition cost."

## 5. EMERGING TECHNOLOGIES AND INNOVATION

- AI and big data analytics are becoming essential in optimising energy consumption and grid management. "Data is key to efficiency. The more we understand consumption patterns, the better we can manage supply and demand."
- The potential of SMRs was discussed, with one speaker noting, "Nuclear is not a silver bullet, but it should be part of the mix."
- Governments should incentivise the scale-up of innovative low-carbon technologies. "We have the technology; what we need is investment and regulatory support."

## 6. CLIMATE SCIENCE AND ADAPTATION STRATEGIES

- Even with aggressive emission reductions, significant warming is inevitable. "Adaptation is no longer optional—it is a necessity," stated one expert.
- Adaptation strategies must be prioritised, particularly for communities already facing climate-related disasters.

## POLICY RECOMMENDATIONS

1. Strengthen International Climate Cooperation – Countries must develop alternative leadership models in response to shifting global governance structures.

2. Enhance Investment in Demand-Side Flexibility – Funding must prioritise technologies that improve energy efficiency and grid stability.

3. Develop Comprehensive Carbon Pricing Mechanisms – Implementing a global, market-driven carbon pricing framework can drive emission reductions while ensuring economic viability.

4. Support Disruptive Innovation – Governments should invest in R&D to foster next-generation clean energy solutions.

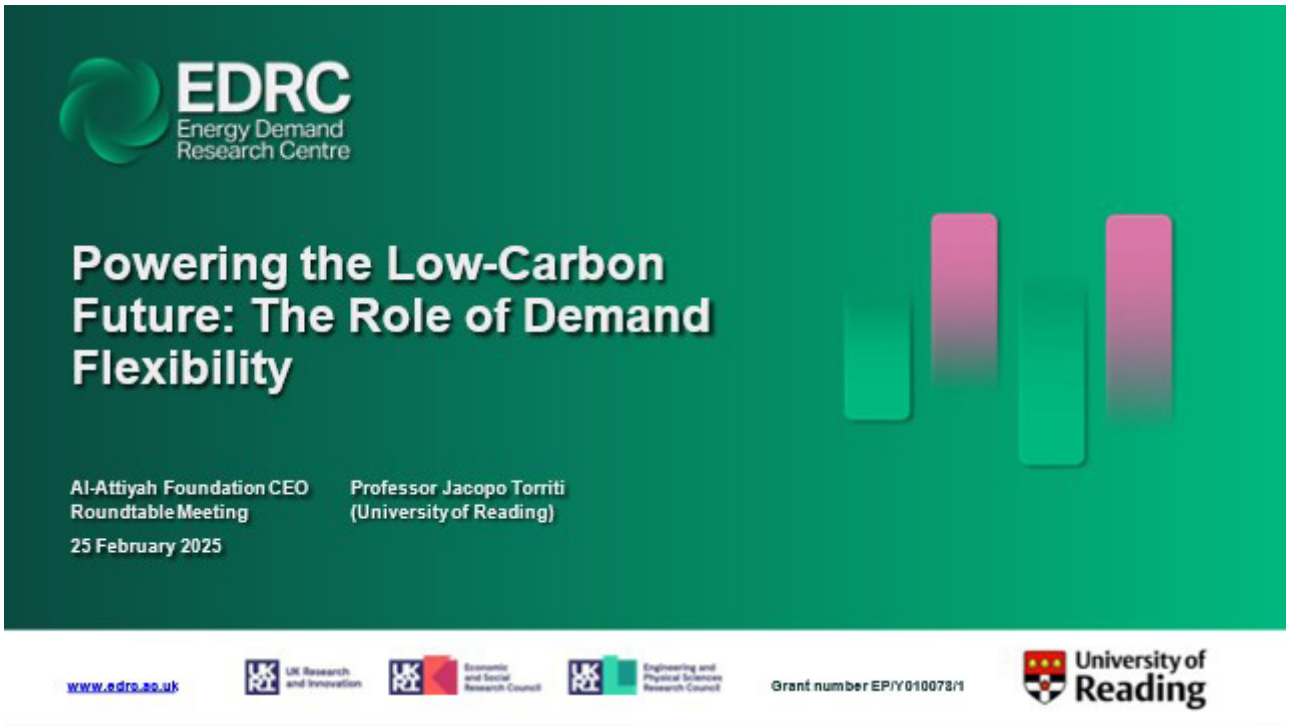
5. Ensure a Just Energy Transition – Policies must address economic and social impacts, ensuring fair opportunities for transition.

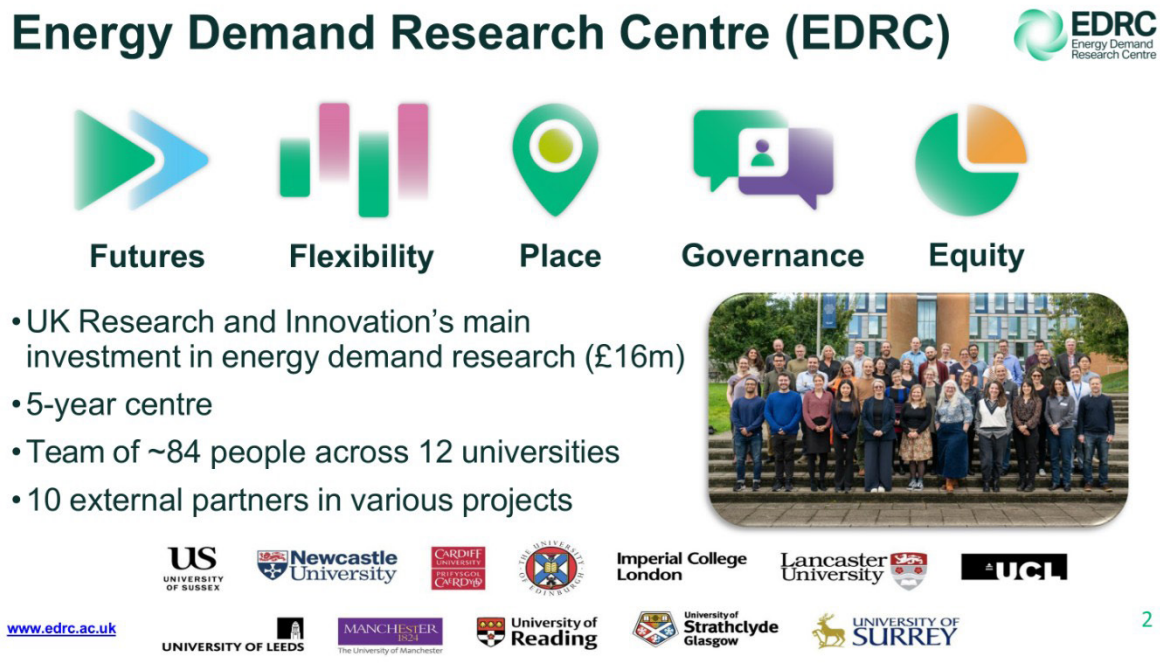
# CONCLUSIONS

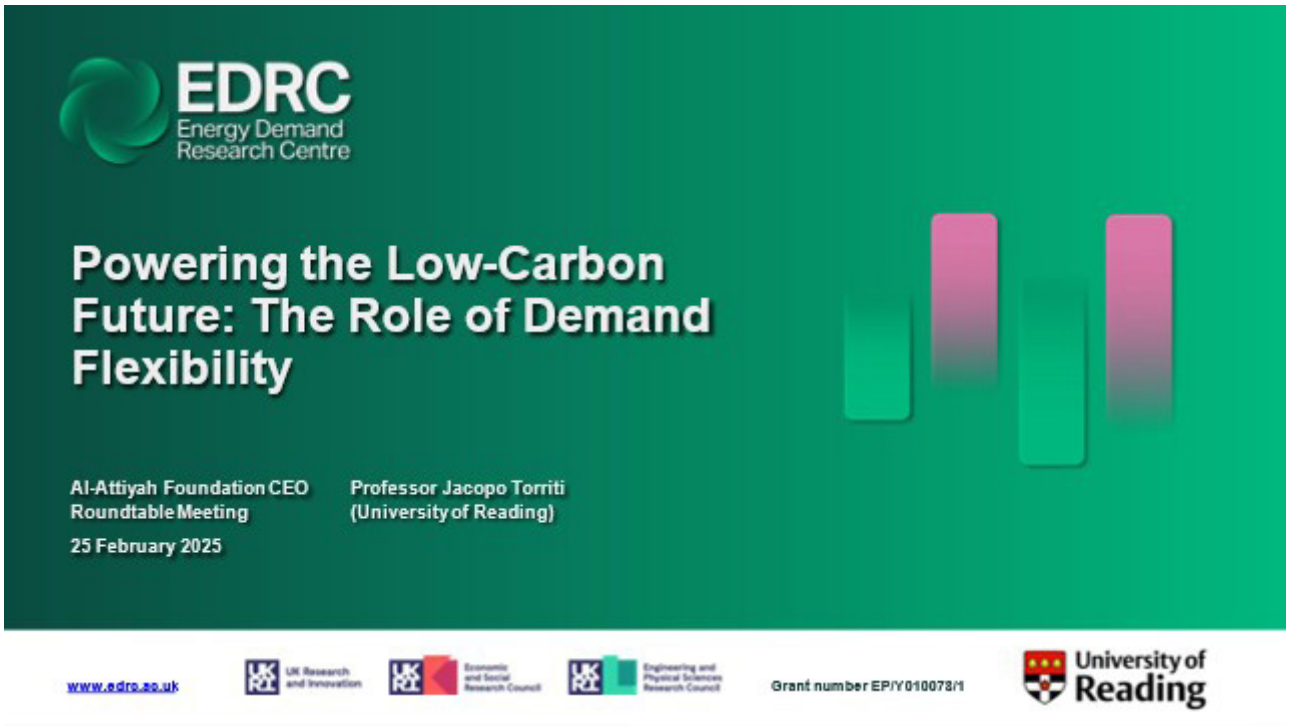
Balancing economic growth with climate action is a formidable challenge but presents immense opportunities for innovation and collaboration. The Al-Attiyah Foundation remains committed to fostering dialogue and actionable insights to support a sustainable energy future. Policymakers, industry leaders, and financial institutions must work together to build a resilient, low-carbon economy. "The time for talk is over. We need bold action, and we need it now."

In his closing remarks, H.E. Dr Mohammed Bin Saleh Al-Sada thanked the moderators, speakers, participants, and members of the Foundation for their contributions. He highlighted the value of diverse perspectives in understanding complex issues and reiterated the necessity of combining economic growth with climate action. "We have all heard the challenges; now, we must focus on solutions."

## Presentation by Professor Jacopo Torriti

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Energy Demand
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Powering the Low-Carbon Future: The Role of Demand Flexibility
Al-Attiyah Foundation CEO Roundtable Meeting
25 February 2025
Professor Jacopo Torriti
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• UK Research and Innovation's main investment in energy demand research (£16m)
• 5-year centre
• Team of ~84 people across 12 universities
• 10 external partners in various projects
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## UK context: The role of flexibility in achieving decarbonisation

EDRC Energy Demand Research Centre

**The majority of electricity now comes from low-carbon sources** - wind nuclear. Renewable generation is more than 30x higher than 25 years ago.

**Generation is increasingly at the edges of the energy system** – driven by the growth in offshore wind and other renewables.

**Digital technology** is playing an increasingly active role in the system. E.g. smart meters.

**Demand** will increase through electrification of heat, transportation and industrial processes.

**These changes pose significant challenges to balancing demand and supply**

**Instead of using fossil fuels to balance fluctuations in solar and wind energy, demand flexibility allows energy use to be adjusted in real time to better match available supply**

**Flexibility is critical to achieve decarbonisation**

## Flexibility can significantly reduce the costs of adapting to these changes

EDRC Energy Demand Research Centre

| Source | Annual benefits of flexibility |
|---|---|
| Piclo, Element Energy, Graham Oakes (2020) | £3 billion - £4.55 billion |
| Climate Change Committee (2019) | £3-4 billion |
| National Grid ESO (2022) | £3.2 billion - £4.7 billion |
| Cornwall Insight (2023) | £4.6 billion - £14.1 billion |
| Carbon Trust, Imperial College Consultants (2021) | £9.6 billion - £16.7 billion |


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## Key message #1:
## The more we know about demand the better

EDRC Energy Demand Research Centre

We know about the technologies and costs of flexibility, but…

we do not know how to best combine them

We treat them as technologies (as supply), however…

this is meant to be a **demand** solution, so…

The **more** we know about **demand**, the **better**.

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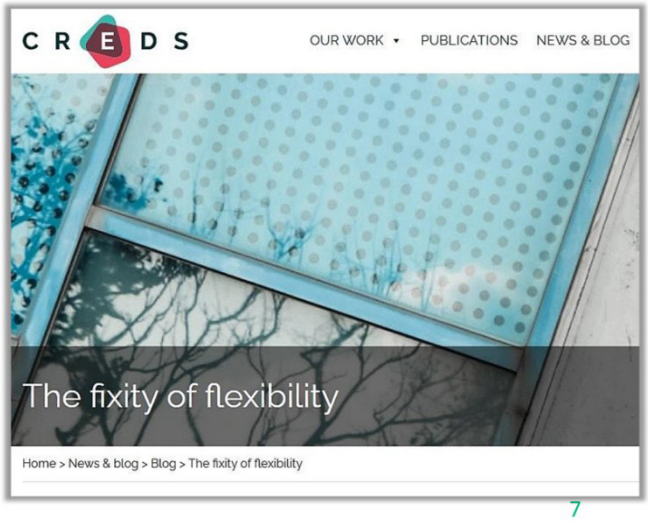


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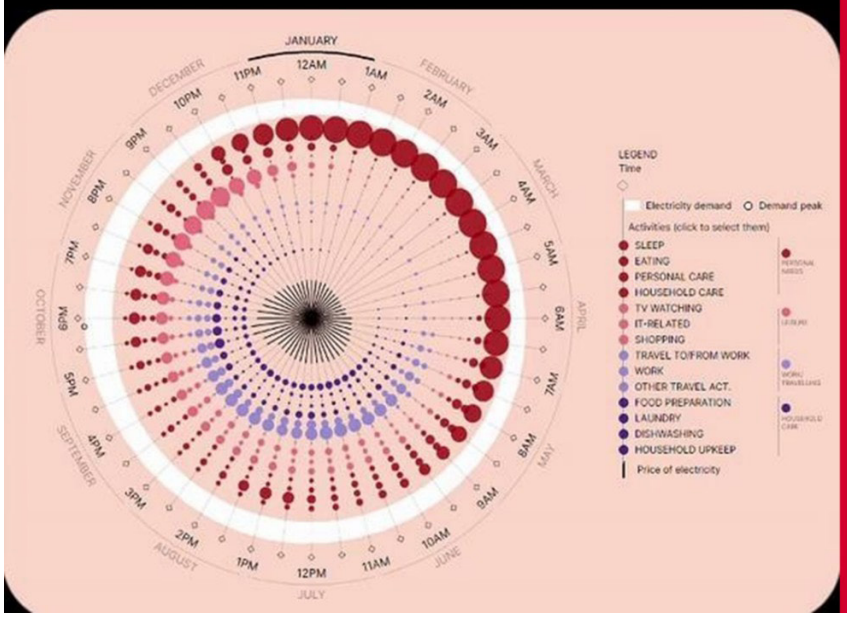
https://www.creds.ac.uk/the-fixity-of-flexibility/

## Key message #2: Flexibility solutions can be built from demand data




- Smart meter data
- Time use activities
- Price of electricity

Animation: https://energy-demand-flexibility.co.uk

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## A few reflections on flexibility

- Along with investments in renewables, demand side flexibility is critical for achieving decarbonisation
- The economic benefits of demand flexibility are in the order of tens of billions of dollars
- Flexibility solutions will need to build on demand data

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## Material

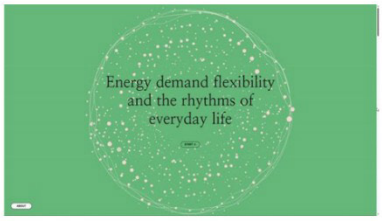
**Podcast**
(http://bit.ly/3kJyaLi)

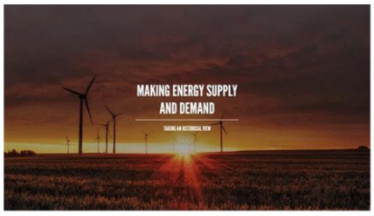
**Reading rooms series**
(http://bit.ly/3kKTXT2)

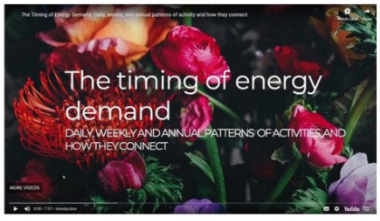
**Photo essay**
(http://adobe.ly/3FAnpTT)

**Energy flexibility gallery**
(http://bit.ly/3RamZYi)

**Data visualisations**
(http://bit.ly/3VBOCed)





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# Publications


- Torriti, J. (2024), Governance perspectives on achieving demand side flexibility for net zero. Energy Policy, 191
- Marsden, G., Shove, E., Torriti, J. (2024), How much storage do we need in a fully electrified future? A critical review of the assumptions on which this question depends. Energy Research & Social Science, 114
- Ramirez-Mendiola, J., Torriti, J., Yunusov, T. (2023), Demand flexibility certificates: increasing the visibility of demand flexibility through certification. Energy Demand Research Centre
- Torriti, J., & Yunusov, T. (2020), It's only a matter of time: Flexibility, activities and time of use tariffs in the United Kingdom. Energy Research & Social Science, 69.
- Cardoso Araya, C., Torriti, J. and Lorincz, M. J. (2020) Making demand side response happen: A review of barriers in commercial and public organisations. Energy Research & Social Science, 64.
- Kleinebrahm, M., Torriti, J., McKenna, R., Ardone, A., Fichtner, W. (2021), Using neural networks to model long-term dependencies in occupancy behavior. Energy and Buildings, 240.
- Yunusov, T. and Torriti, J. (2021) Distributional effects of Time of Use tariffs based on electricity demand and time use. Energy Policy, 156.
- Ramirez-Mendiola, J., Mattioli, G., Anable, J., Torriti, J. (2022), I'm coming home (to charge): the relation between commuting practices and peak energy demand in the UK. Energy Research & Social Science, 88.


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## Thanks

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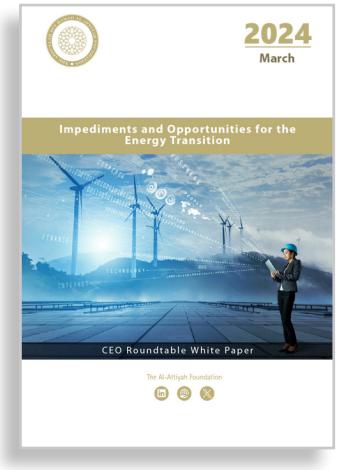


December – 2024

### Impediments and Opportunities for the Energy Transition

The meeting commenced with a customary welcome from H.E. Abdullah bin Hamad Al- Attiyah, extending greetings to members, guests, and speakers gathered for the inaugural CEO Roundtable of 2024. He noted the timeliness and relevance of the chosen topic, resonating with all present.

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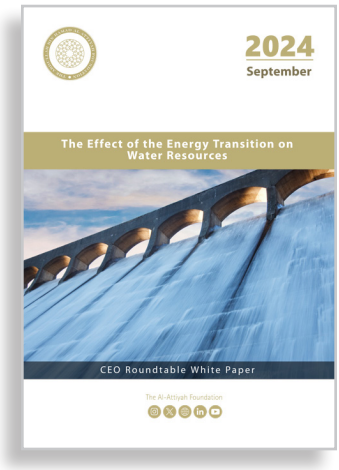


September – 2023

### The Effect of the Energy Transition on Water Resources

The third quarterly CEO Roundtable of 2024 commenced with a speech from Vice Chairman of the Board of Trustees of the Al-Attiyah Foundation, His Excellency Ibrahim Ibrahim. During H.E. Ibrahim Ibrahim's address, he extended greetings to members, guests, and speakers gathered in the room and online.

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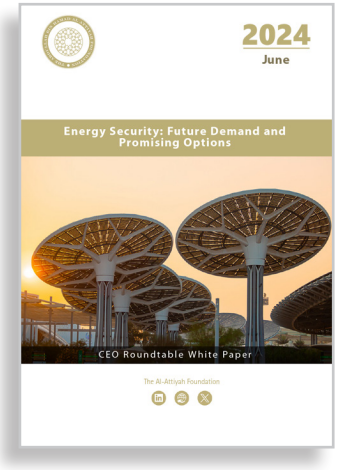


June – 2024

### Energy Security: Future Demand and Promising Options

The meeting commenced with a customary welcome from H.E. Abdullah bin Hamad Al- Attiyah, extending greetings to members, guests, and speakers gathered for the second CEO Roundtable of 2024. He noted the relevance of the topic. He said that we hear much about the security of supply of fossil fuels, but equally important to suppliers is the security of demand.

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Our partners collaborate with the Al-Attiyah Foundation on various projects and research within the themes of energy and sustainable development.

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