


THE HAWTHORN CLUB

A&M

15 Years

of Transformation in Energy

The Hawthorn Club: 15 Years of Transformation in Energy reflects a decade and a half defined not only by technological disruption and policy evolution, but by the determination of the women driving those shifts.






A letter from the founder

This report showcases how Hawthorn Club women have been at the forefront of global energy transition.The data shows the progress; the stories reveal the perseverance behind it.

These themes capture the scale—and the humanity—of this transformation.

1. Power up

The explosive growth of data centres and rising load demand demonstrate the evolving needs of an increasingly digital world.

2. Brown to green

A decisive global pivot from fossil fuels toward renewables is reshaping grids and markets across continents.

3. Making waves

Oceans and water bodies are becoming engines of innovation through offshore wind and floating solar.

4. Back to the Future—Electric Vehicle

What began as an exercise in technological innovation has led to a reordering of global markets.

5. Be the change

Landmark policy and legislation have accelerated decarbonisation, proving the impact of strategic, conviction-led leadership.

6. Work Smarter, Not Harder—Smart Grid and Technology Enablement

The energy grid has undergone a remarkable transformation, evolving from a centralized, one-directional system into an increasingly dynamic, decentralized, and intelligent network.

7. Refuelling for success

Global CCUS capacity is set to double, underscoring momentum behind technologies essential for achieving net-zero goals.

Across each theme, one truth stands out: transformation does not happen by chance. It happens because leaders stay the course. As Julie McLaughlin so eloquently reminds us:

Julie McLaughin launching this report, at the Global Summit, London, 16 October 2025.

"What we don't see in the data is that need for perseverance. We are not where we are because we're patient women, but it is good to remember that if you stay the course and you have that conviction, then you can see the change."

As we reflect on 15 years of impact, we celebrate the perseverance, conviction, and vision of the women shaping the future of energy—and inspiring those who will follow.

This report also marks the 15-year anniversary of the Hawthorn Club. In October 2025, we celebrated this milestone event back in London, where it all began, with a black-tie dinner at the Wallace Collection and Summit at The House of Lords. From those early days, the Club has grown into a global organisation with branches in Europe, North America, and Asia-Pacific. Our members now represent some of the world's largest and most influential companies. We have built a network recognised and respected by male and female colleagues alike.

Looking back, it's easy to see how this happened—because hindsight is always a wonderful thing. But 15 years ago, our success was far from guaranteed. Change was not inevitable. When I was bootstrapping the Hawthorn Club from the spare bedroom of my flat in Putney, running it part-time while juggling a full-time job, I would never have believed it would become the global network it is today.

But I was fortunate to have people who believed in the vision from the beginning.

Long-time members who helped lay the foundations of the Club, and other guests, celebrate its 15-year anniversary at the Wallace Collection black-tie dinner, London, 15 October 2025. From left: Sara Neff, Charlotte Blommestijn, Laura Hunt, Nancy Pfund, Carla Tully, Meade Harris, Pernille Holtedahl, Victoria Merton, Tania Songini, Kristina Wittmeyer, Scott Sadler, Trude Sundset

As the Club has grown, so too has our resilience. Even during adversity—particularly throughout the COVID-19 pandemic—new members continued to join. For nearly two years we met virtually, yet the power of the network only strengthened. Many of you have carried the Club with you into new companies and new leadership roles, a testament to the value you see in it.

Maud Texier, Heidi Østergaard, Stephanie Judge, Heather Redman; Webinar on 'AI and renewables', 20 November, 2023

When I started the Hawthorn Club, I wanted to change the face of the energy sector, because I have always believed that the energy transition cannot happen without women.

Fifteen years later, the landscape is shifting—and my original vision is becoming a reality. Our members are recognised globally as leaders in the energy transformation. We are not executives discussing "women's issues"; **we are the executive women changing the sector.**

Our impact is measured in two powerful ways.

1. We turn our conversations into commercial outcomes.

Talk is cheap—but capital walks.
And Hawthorn Club members are walking.

Billions of dollars' worth of deals have been facilitated at Club events. Our members are making the investments in technologies, infrastructure, and innovation that are powering the global transition to a cleaner economy. These deals span continents and sectors, and their collective impact is extraordinary.

2. We make female executives visible.

You cannot be recruited to a board or executive role if no one knows your name.

That is why we partner with organisations such as BloombergNEF, Spencer Stuart and Bloomberg-New Voices.

Since 2017, BloombergNEF has been a steadfast supporter of the Club. Our collaboration has helped BloombergNEF consistently achieve—and now exceed—its goal of 30% female speakers at its summits, with the figure now at 40% at many of the Summits. We continue pushing toward 50%.

Of course, our work is far from done—and the one thing we do not have is time. But if the Hawthorn Club has helped elevate the role of women while accelerating the transformation of the energy sector, even slightly, then I know I can look my daughter in the eye and say I have done my part.

Thank you all, very much for your belief in the power of the network.

Meade

Empire State Building Tour & Lighting for Women in Energy, Global Summit, New York, 11 April 2018

Power Up—Data Center Demand and Clean Energy Deployment

The rapid acceleration of data center demand, driven by artificial intelligence (AI) and advanced computing, is reshaping global energy needs. AI workloads, which require high-performance processors and dense computational infrastructure, are significantly increasing energy consumption. For instance, AI-driven data centers are projected to require $5.2 trillion in capital expenditures by 2030 to meet energy demand[1], reflecting the growing reliance on hyperscale facilities to support AI applications. This surge in demand is further amplified by the increasing density of racks and chips, which optimizes the use of physical space but intensifies energy requirements.

Back in 2010, global investment in AI was relatively modest and still in its early stages of development and adoption. Public opinion in 2010 was shaped by a mix of optimism and skepticism, with AI largely perceived as a futuristic concept rather than a practical tool for everyday life. While there was excitement about AI's potential, few anticipated that over the next decade AI would become a transformative force in technology and society. The AI Index 2018 report highlights that venture capital funding for AI startups experienced a surge in interest and funding in the mid-2010s, quadrupling between 2013 and 2018[2].

The global distribution of data center demand highlights key regions of growth, with hotspots emerging in areas that have robust digital infrastructure and favorable energy policies. The US remains the leader in AI transformation due to its unparalleled investment, infrastructure, and talent pool. States like Texas, which experienced a 23% rise in energy demand from 2021 to 2025 during the same timeframe, are at the forefront of this expansion[3]. Similarly, the PJM Interconnection, home to many top-tier data center markets, is prioritizing new-generation projects to meet escalating load forecasts. These trends underscore the critical need for strategic energy planning to support the burgeoning data center industry.

"Power demand is increasing at an unprecedented rate in modern history. To meet the needs of AI, data, and industrial growth, we must utilize all available energy sources,"

noted **Gayle Miller** (Transition and Institutional Relationships/Investments, Global Client Group, Brookfield Asset Management). Miller further notes:

"Renewables, supported by advanced storage and next-generation baseload options like nuclear, are not merely climate solutions—they form the backbone of economic competitiveness. The companies and countries that secure resilient clean power will be at the forefront of the AI era."

Gayle Miller and Roxana Tataru discussing AI, Global Summit, London, 16 October 2025

1 McKinsey & Company (2025). The cost of compute: A $7 trillion race to scale data centers. Retrieved from McKinsey & Company
2 AI Index Report (2018). Retrieved from AI Index
3 Energy Information Administration (2025). ERCOT increasingly meets rising demand with solar, wind, and batteries. Retrieved from ERCOT

The rise in data center energy demand presents both challenges and opportunities for clean energy deployment. The consistent and relatively stable energy requirements of data centres align well with the increasingly cost-competativeness of renewable energy sources. Additionally, data center operators are actively decarbonizing their facilities, driven by their net-zero commitments and emerging government regulations. For instance, from January 1, 2027, 100% of the energy procured for data centers in Germany will be renewable energy[4]. Amazon, Microsoft, Meta, and Google contracted 11.3 GW of renewable energy via power purchase agreements (PPAs), contributing to the record level of clean energy PPAs in 2024[5]. For renewables, generally, the levelized cost of energy continues to decline[6], making them a viable option for powering energy-intensive facilities.

Industry leaders, including Hawthorn Club members like **Melanie Nakagawa** (Chief Sustainability Officer, Microsoft) and **Gin Kinney** (Chief Administrative Officer, NRG Energy), emphasize the importance of aligning corporate strategies with sustainability goals. **Nakagawa**, a prominent advocate for climate-positive investing, highlights the role of private capital in scaling clean energy solutions. "Microsoft's carbon-free electricity program has grown eighteenfold since 2020, with contracted renewables increasing from 1.8GW to more than 34GW across 24 countries," **Nakagawa** noted. "We continue to advocate for expanding clean energy solutions globally to support not only our power needs but also those of our supply chain."

Melanie Nakagawa speaking at the Global Summit, New York, 21 April 2022

"I have been a long-time supporter of The Hawthorn Club because, for me, leadership in the energy transition means not just driving innovation but building resilient networks that amplify impact and accelerate progress. Over the last 15 years, Hawthorn has built a trusted executive network to accelerate this transition to a sustainable future with business insights and meaningful dialogue."

Melanie Nakagawa, Chief Sustainability Officer, Microsoft

Similarly, **Gin Kinney's** leadership at NRG Energy underscores the importance of bringing solutions to the market. "AI is driving load growth. It is also enabling solutions like virtual power plants that will improve resilience and contribute to a more sustainable future," said **Kinney**. "To help meet this growing demand, NRG plans to bring 1.5GW of new natural gas generation online in Texas by 2028 and has created the most advanced end-to-end joint development and power supply platform for large load energy solutions."

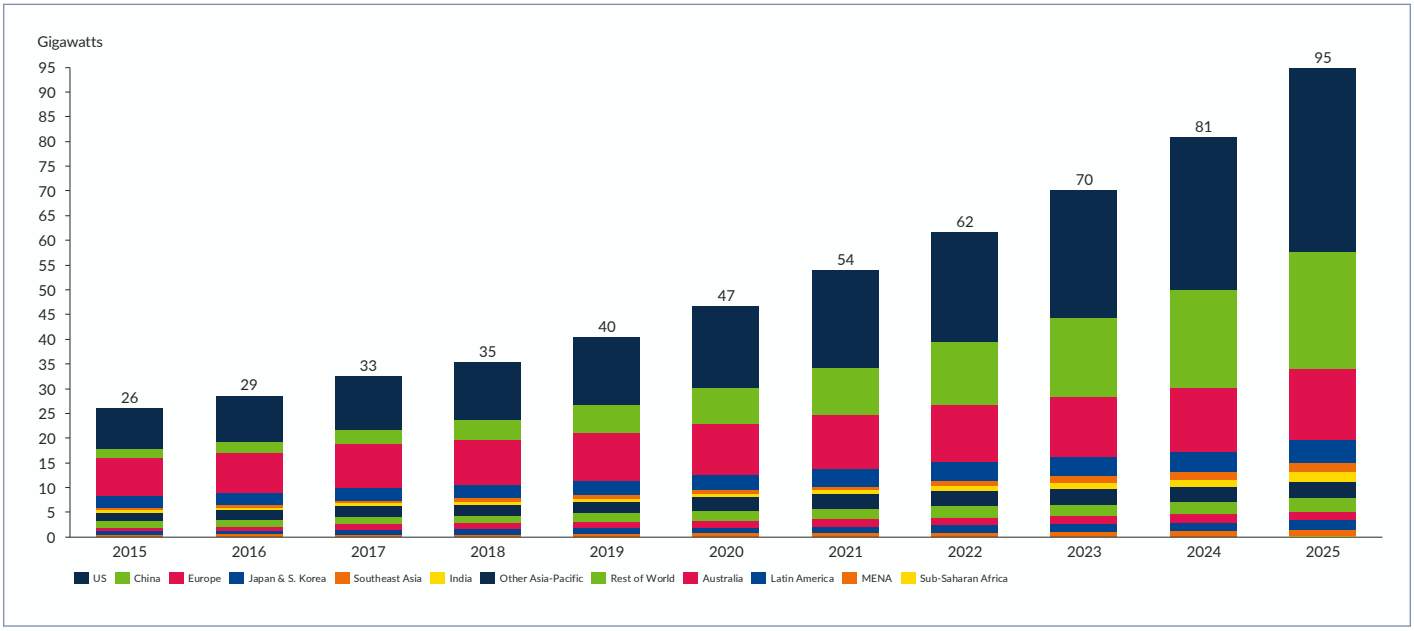
"It has been an immense privilege to be among these extraordinary women who are power players in their respective fields. The humility, the generosity of time, and the genuine camaraderie that one experiences when attending The Hawthorn Club gatherings really is set apart from any other membership experience."

Gin Kinney, Executive Vice President, Chief Administration Officer, NRG Energy

4 Etalytics (2024). Germany's Energy Efficiency Act in Data Centers. Retrieved from Etalytics
5 American Clean Power (2025). Clean Energy Contracts with Fortune 500 Companies Surge in 2024. Retrieved from American Clean Power
6 BloombergNEF (2025). Global Cost of Renewables to Continue Falling in 2025. Retrieved from BloombergNEF

As data center demand continues to grow, the integration of clean energy solutions will be pivotal in addressing the associated energy challenges. By leveraging advancements in renewable energy technologies and fostering collaboration between public and private sectors, the industry can achieve a sustainable balance between growth and environmental stewardship.

The Global Data Center Power Load Outlook by Market, Economic Transition Scenario[7]



Global Summit Speakers, London, 16 October 2025

7 BNEF Global Data Center Power Demand Outlook July 2025

From Brown to Green

Over the last 15 years, the global energy market has undergone a transformative shift, driven in large part by the dedication, innovation, and leadership of trailblazing women in energy, including members of The Hawthorn Club. Annual global renewable electricity generation has more than doubled, rising from 4,200 terawatt hours (TWh) in 2010 to 9,900 TWh in 2024.[8] Today, approximately 30% of global electricity production is derived from renewable sources, a dramatic increase that highlights the accelerating momentum of change within the energy industry.[8] This shift underscores not only the rapid adoption of clean energy technologies but also the growing importance of collaboration and the exchange of expertise among industry professionals in driving progress.

Looking back to 2010, the year The Hawthorn Club was founded, fossil fuels dominated the energy landscape, accounting for roughly 80% of global primary energy demand, with coal, oil, and natural gas leading electricity generation.[8] This dominance has steadily eroded as renewables have gained traction, supported by a combination of technological innovation, policy commitments, and economic factors. From 2010 to 2025, the UK, Europe, the US, and Australia transitioned significantly from "brown" to "green" energy. Milestones include the UK's complete coal phaseout in 2024[9], Europe's record 44% renewable electricity share in 2023[10], the US' wind and solar surpassing coal to make up 17% of electricity generation in 2024[11], and South Australia achieving 75% renewable electricity in 2024 and aiming for 100% by 2027[12]. Globally, coal retirements have steadily increased from 2010 to 2024, reflecting this shift toward cleaner energy sources. However, the pace of retirements has slowed since 2020, highlighting ongoing challenges in transitioning away from coal in certain regions. In 2024, 26.8 GW of coal-fired power capacity was retired globally, significantly more than the 17.8 GW retired in 2010[13].

Across regions worldwide, members of The Hawthorn Club have been at the forefront of this trend of 'brown to green, leading utilities, advising governments, and driving investment in new energy resources.

Their leadership spans diverse roles—from shaping regulatory frameworks and market designs to advancing renewable energy projects and fostering innovation in clean energy technologies. Their contributions have been pivotal in advancing technological breakthroughs, such as grid-scale battery energy storage systems, and innovative demonstrations like CopenHill, a waste-to-energy ski slope in Copenhagen, where The Hawthorn Club hosted an event in 2018. These technological strides have been complemented by policy and economic incentives over the last 15 years, such as the American Recovery and Reinvestment Act (2009), the EU Climate & Energy Package (2010), the Paris Agreement (2015), the European Green Deal (2019), and the US Inflation Reduction Act (2022).

"The Club has gone from strength to strength, and the value of such a resource and network for women in energy cannot be underestimated."

Catherine Tanna, Chair of Bechtel & BHP Board Member

8. Energy Institute. (2025). 2025 Statistical Review of World Energy. Retrieved from Energy Institute
9. World Resources Institute. (n.d.). Statement: UK Eliminates Coal Power Generation. Retrieved from World Resources Institute
10. SolarPower Europe. (2023). 2023: A milestone year for renewable energy in Europe - Unveiling Ember's Electricity Review. Retrieved from SolarPower Europe
11. Ember. (2025). US Electricity 2025: Special Report. Retrieved from Ember
12. The Guardian (2024). South Australia's renewable energy targets hailed as international template for solar power. Retrieved from The Guardian.
13. Global Coal Plant Tracker (2025). How much coal capacity has been added and retired? Retrieved from Global Energy Monitor

The collective efforts of the women of The Hawthorn Club have not only accelerated the energy transition but also set a powerful example of inclusive and visionary leadership in shaping the future. Club member **Catherine Tanna**, during her tenure as Managing Director of EnergyAustralia, exemplified this leadership by championing a balanced and orderly transition from coal-fired power stations to renewable energy. Her focus on reliability, affordability, and environmental responsibility helped position Australia as a leader in renewable energy. The country increased its share of renewables from under 2% of domestic production in 2010[14] to 36% in 2024[15], supported by more than 40 gigawatts (GW) of installed solar capacity[16].

Hawthorn Club tour of AES commercial scale storage project, Northen Ireland, 2016.

The ongoing transition from "brown to green" is a testament to the power of innovation, leadership, and strategic vision. Hawthorn member **Carla Tully** (Board, Pattern Energy) represents the ingenuity and leadership behind this energy transformation. With more than two decades of experience in energy and infrastructure, **Tully** has made significant contributions to the decarbonization of the energy market. During her tenure as President of AES UK & Ireland, she oversaw the development of the first commercial-scale energy storage project in the region, integrating lithium-ion batteries into the Belfast coal plant, which The Hawthorn Club toured in 2016. This groundbreaking initiative established Ireland's energy storage market and, further, set a precedent for system flexibility and renewable integration across Europe.

14 Australia Energy Account (2010). Retrieved from Australia Bureau of Statistics
15 Australian Energy Statistics (2024). Retrieved from Australian Government
16 PV Magazine (2025). Australia installs 5.2 GW of solar in 2024. Retrieved from PV Magazine

Reflecting on the Belfast project, **Tully** remarked:

"Introducing energy storage to the UK and Irish markets 10 years ago required bringing together the passion and expertise of both the local coal plant engineers and the global energy storage innovators into a single, unified team. Only when we create bridges between people of different experiences and technologies of distinct characteristics can we truly move markets and build the energy system needed to power our future."

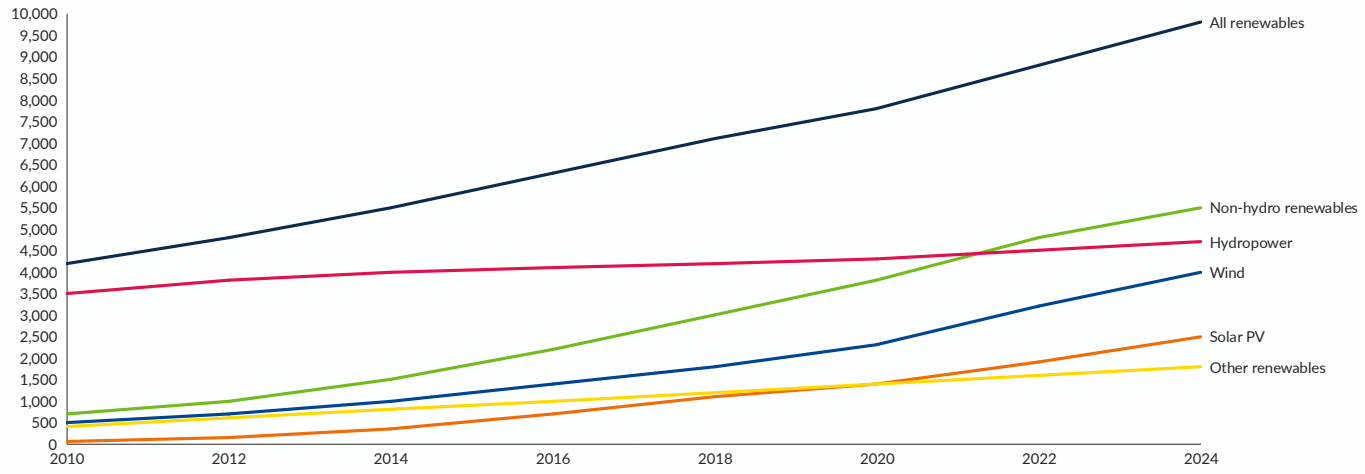
Building on her extensive experience, in 2019 **Tully** cofounded Earthrise Energy, a company designed to accelerate renewable energy deployment by leveraging legacy fossil fuel generation plants. Earthrise Energy's innovative model repurposes existing infrastructure and interconnection rights, creating a bridge between traditional energy systems and a renewable future. This approach not only drives environmental and economic progress but also helps ensure that communities reliant on coal for employment and tax revenue are not left behind. **Tully** emphasized that this strategy "fosters community trust by maintaining local tax bases and providing new opportunities for skilled workers at these sites." Additionally, using existing interconnection rights expedites renewable energy deployment. **Tully's** work exemplifies how the renewable energy transition can be both efficient and inclusive, delivering tangible benefits to the communities most affected by the shift while at the same time advancing the broader decarbonization goals.

From left: Kate Vidgen, Meade Harris, Joanne Spillane, Shemara Wikramanyake and Nicola Wakefield-Evens, Sydney, 14 February 2019

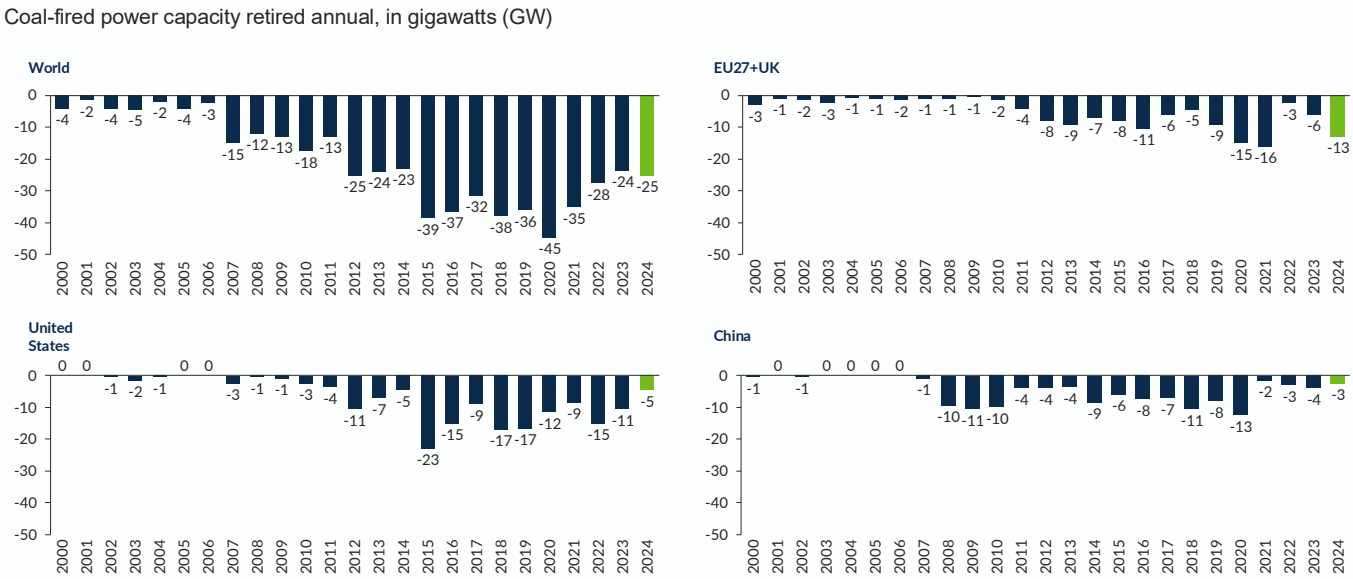
"As the world transitions to clean energy, The Hawthorn Club provides an invaluable network for senior women working across the energy sector to share their experiences of advancing this transition."

Shemara Wikramanayake, CEO, Macquarie Group

Share of Global Renewable Electricity Generation by Technology, 2000–2030[17]



Coal-fired Power Capacity Retired Annually, in GW[18]



17 International Energy Agency (2025). Share of Global Renewable Electricity Generation by Technology, 2000-2030. Retrieved from International Energy Agency
18 Global Coal Plant Tracker (2025). Coal-fired Power Capacity Retired Annually, in GW. Retrieved from Global Coal Plant Tracker

Making Waves—Offshore Wind and Floating Solar

Since 2010, the offshore wind and floating solar industries have experienced significant growth, and Hawthorn Club members have played key roles in this development. Global Wind Energy Council reports that the global offshore wind market has grown at an average annual rate of 10% over the past decade[19]. By 2025, offshore wind installations represent 7.3% of global wind capacity, highlighting their growing role in the renewable energy transition[19]. Offshore wind capacity has surged from 3GW in 2010[20] to 83GW in 2025[19], driven by advancements in turbine technology, cost reductions, and supportive government policies.

The first commercial offshore wind project in the US, the 30MW Block Island Wind Farm, began operations in 2016[21]. However, Europe, especially countries around the North Sea and the UK, has driven global growth in offshore wind, fueled by strong policy support and financial incentives. The scale of offshore wind in England is illustrated by Dogger Bank, the largest project currently under construction—a multiphase development that is set to achieve a combined installed capacity of 3.63GW, making it more than 700 times larger than the pioneering Vindeby Wind Farm (the first offshore wind project off the coast of Denmark and commissioned in 1991)[22].

Over the last 15 years, wind energy technology has seen significant advancements in capacity factors. Offshore wind capacity factors increased from 38% in 2010 to 43% in 2018[20]. The improvements highlight the increasing efficiency and reliability of wind energy, further solidifying its position as a key player in the global shift toward sustainable energy solutions.

Olivia Breese (Partner, Copenhagen Infrastructure Partners) a long-time member of The Hawthorn Club has made significant contributions to the offshore wind market through her leadership roles at Ørsted between 2012 and 2023. She notes:

The evolution of offshore wind is a testament to the global energy transition, showcasing exponential growth in timely and cost-effective power production over the past 15 years, even as assets have grown larger and more complex. As governments recognize offshore wind's potential to address modern society's three fundamental needs: large-scale low-cost clean energy, job creation, and energy security, the sector has increasingly come to be seen as a solution to more than climate change. In many regions of the world, generating power from new renewable generation is cheaper than the marginal cost of existing fossil fuel assets (even without a fair carbon price!): offshore wind is already delivering electrons at a large scale, close to demand centers and will continue its cost-out, scale up journey across the globe in the decades to come.

19. Global Wind Energy Council (2025). Offshore wind installed capacity reaches 83 GW as new report finds 2024 a record year for construction and auctions. Retrieved from GWEC
20 International Renewable Energy Agency (2025). Future of Wind. Retrieved from IRENA
21 Norton Rose Fulbright (2024). Global offshore wind: USA. Retrieved from Norton Rose Fulbright
22 Dogger Bank Wind Farm. Retrieved from Dogger Bank

Olivia Bresse (middle) with Charlotte Blommestijn (left) and Lila Preston (right) at the Global Summit Black Tie dinner at The Wallace Collection, London, 15 October 2025.

Another Hawthorn member, **Trine Dalsgaard** (CEO, GPA Flowsystem) has made significant contributions to the offshore energy market through her leadership in business development and renewable energy. As Vice President of Business Development for Terma A/S, **Dalsgaard** has been instrumental in advancing critical offshore energy infrastructure, including radars and surveillance systems that enhance the safety and efficiency of offshore wind farms. Her extensive experience includes a decade at Vestas Wind Systems, where she served as Sales Director for Scandinavian markets, driving the adoption of wind energy across the region. **Dalsgaard** has also held leadership roles in biogas and other renewable energy companies, showcasing her commitment to diversifying and strengthening the clean energy sector. Through her work, she has contributed to the growth of offshore wind and fostered innovation and collaboration within the global renewable energy industry.

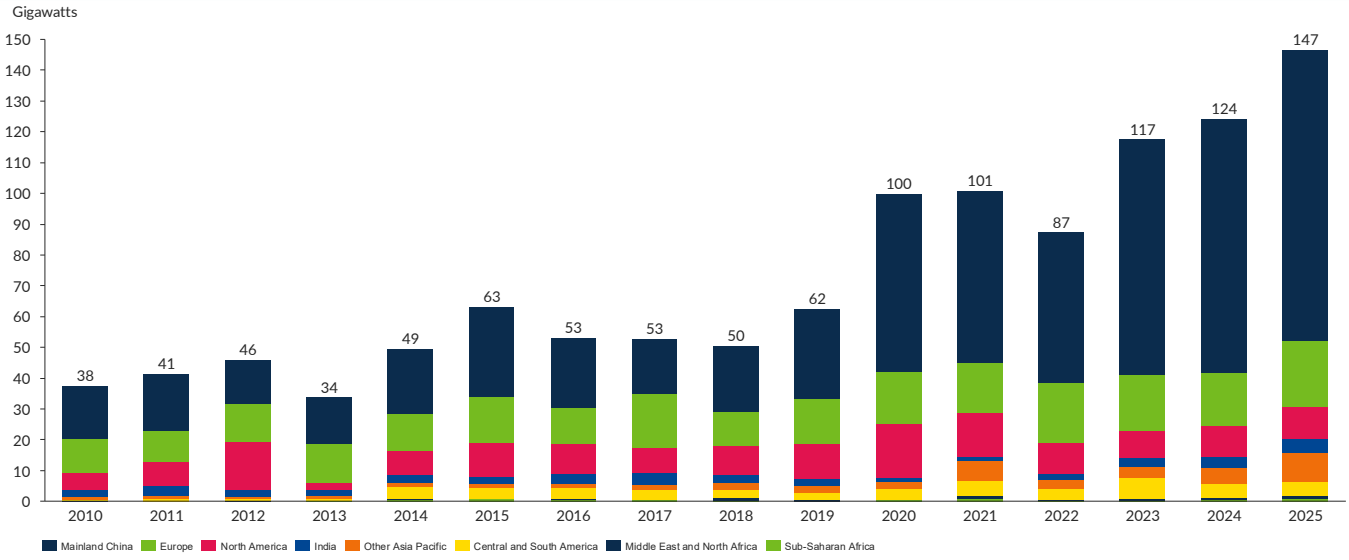
Although not yet at the same scale as offshore wind, the floating solar industry has emerged as a viable solution for regions with limited land availability. By using water bodies such as reservoirs and lakes, floating solar installations reduce land use conflicts and offer additional benefits like reduced water evaporation and improved panel efficiency due to cooling effects. Although still in its early stages compared to offshore wind, installed floating solar capacity has increased dramatically—from just 2MW in 2010 to 1,097MW in 2018[23], and to more than 3,000MW in 2024[24].

In June 2024, members of The Hawthorn Club visited EDP's Alqueva Power Plant, Europe's largest floating solar–hydro hybrid facility. Hosted by **Joana Freitas**, (Executive Board Member, EDP Generation), the tour showcased the plant's innovative integration of renewable energy technologies. The Alqueva facility combines a 510MW hydroelectric power station with a pumping system for energy reserves, a floating solar power station featuring 12,000 photovoltaic panels with a capacity of 5MW, and a 2MW/hour battery storage system. This pioneering hybrid approach addresses grid connection challenges by combining multiple technologies behind a single injection point, optimizing energy production and storage. The visit highlighted the project's role as a testing ground for renewable energy synergies and its potential to serve as a model for future hybrid systems.

23 Floating Solar Market Report (2018). Where Sun Meets Water. Retrieved from World Bank
24 Market Growth Reports (2025). Floating Solar Panels Market Overview. Retrieved from Market Growth Reports

European Members visit EDP's Alqueva Power Plant, Portugal, 27 June, 2024

Onshore and Offshore Wind Historical Annual Installations by Region, GW[25]



25 BloombergNEF (2024). Global Wind Market Outlook

Back to the Future—Electric Vehicles

What began as an exercise in technological innovation has led to a reordering of global markets, with electrification of vehicles now defining the strategic outlook of every major automaker and a growing number of new entrants. This evolution reflects a profound societal shift in how we envision mobility, energy use, and environmental responsibility.

In 2010, global sales of electric vehicles (EVs) were in the thousands. The introduction of the Nissan Leaf as the first modern mass-market model marked the beginning of remarkable growth. Two years later, Tesla introduced the Model S, consistent with its strategy to enter at the high end of the market—where customers are prepared to pay a premium—then drive the costs down for the broader customer base. Tesla is widely credited with transforming EVs into mainstream vehicles by making them high-performance and appealing choices. Forecasts for 2025 expect EV sales to exceed 20 million worldwide, equating to more than one-quarter of total cars sold this year, according to the International Energy Agency[26]. This shift has been accompanied by a rapid decline in combustion engine dominance, with internal-combustion vehicles falling to 75% of global sales, their lowest point on record[27].

The global nature of this transition cannot be overstated. China, Europe, and the US have led the way, together accounting for more than 90% of global EV sales in 2024[28]. Europe's adoption has been propelled by stringent emissions regulations and ambitious national zero-emission mandates, while adoption in the US has accelerated as a result of state and federal incentives, expanding charging infrastructure, and automaker commitments to electrification.

Technology, policy, and infrastructure in tandem have driven this shift. Battery costs are down more than 80% since 2010[29]; government incentives and zero-emission mandates are in place across every major region; and global charging networks now number in the millions. The implications are profound. Transport accounts for nearly one-fifth of global CO_2 emissions[30], and electrification is already delivering cleaner air, reduced fossil fuel dependence, and new investment flows into supply chains, charging, and digital integration with electricity systems. At the same time, the challenges of critical mineral supply, equitable charging access, and renewable-powered grids remain urgent priorities.

The contributions made in this field by Hawthorn Club members include early investment in what was initially viewed as a risky experiment. **Nancy Pfund** (Founder, DBL Partners), was one of the earliest to bet on EVs, investing in Tesla at a time when many dismissed the company's potential. With her "double bottom line" approach—seeking both financial return and social impact—she proved that EVs could be both viable and transformative. That validation seeded subsequent waves of capital, shaping the financial underpinnings of large-scale manufacturing and supply chain expansion. That proof point mattered: BloombergNEF estimates that more than $1.2 trillion has flowed into EVs and battery technology over the past decade, much of it riding on the credibility created by early investors like **Pfund**.

"In fifteen years, we have seen the solar and EV markets go from next to nothing to significant market sectors driving the world economy. What started as mission-driven efforts in proverbial garages now drive global economies across a variety of sectors and the world's financial players and markets are amplifying this early growth with investments in the trillions."

Nancy Pfund, Founder and Managing Partner, DBL Partners

26 International Energy Agency (2025). Global EV Outlook. Retrieved from International Energy Agency
27 Nasdaq (2025). The EV Growth Story is Far From Over. Retrieved from Nasdaq
28 International Energy Agency (2024). Global EV Outlook. Retrieved from International Energy Agency
29 International Energy Agency (2024). Batteries and Secure Energy Transitions. Retrieved from International Energy Agency
30 Our World in Data (2020). Where do CO2 emissions from transport come from? Retrieved from Our World in Data

From left: Cathy Shepard, Victoria Merton, Maud Texier, and Meredith Annex, talking about energy security in Europe, Global Summit, London, 16 October 2025

Nancy Pfund and Nora O'Donnell, Global Summit, New York, 26 April 2017

While **Pfund** demonstrated the power of conviction in the early days, leaders like **Cathy Shepherd** (Global Head Clean Energy Transition, Citi) have carried that momentum into the global finance system. At Citi, **Shepherd** has been instrumental in channeling the bank's $1 trillion sustainable finance commitment toward EV supply chains, charging networks, and green bonds. Roughly $500 billion of that pledge is dedicated to environmental projects, and this pool of capital underwrites not just vehicles but also the infrastructure and raw materials that sustain them. Her international focus shows how global finance can align with national industrial policy to accelerate adoption at scale. Her efforts have also included advising multinational corporations and local players on sustainability-linked loans, green bonds, and other financial instruments to accelerate the adoption of EVs and other clean technologies.

At the junction of governance and markets, **Cynthia Dubin** (Board, ICE Futures) has been at the forefront of building the regulatory scaffolding that makes electrification bankable. With more than four decades in energy and finance, she has shaped policy and competition frameworks that ensure EV charging networks are transparent and investable. Since 2019, she has brought this expertise into boardrooms, including at the UK's Competition and Markets Authority, where she championed a landmark market study that established a competitive framework for EV charging. Today, her influence extends through board positions at ICE Futures Europe, where she continues to shape how energy and emissions markets evolve to support electrification.

Amager Bakke Site Tour, Copenhagen 2018

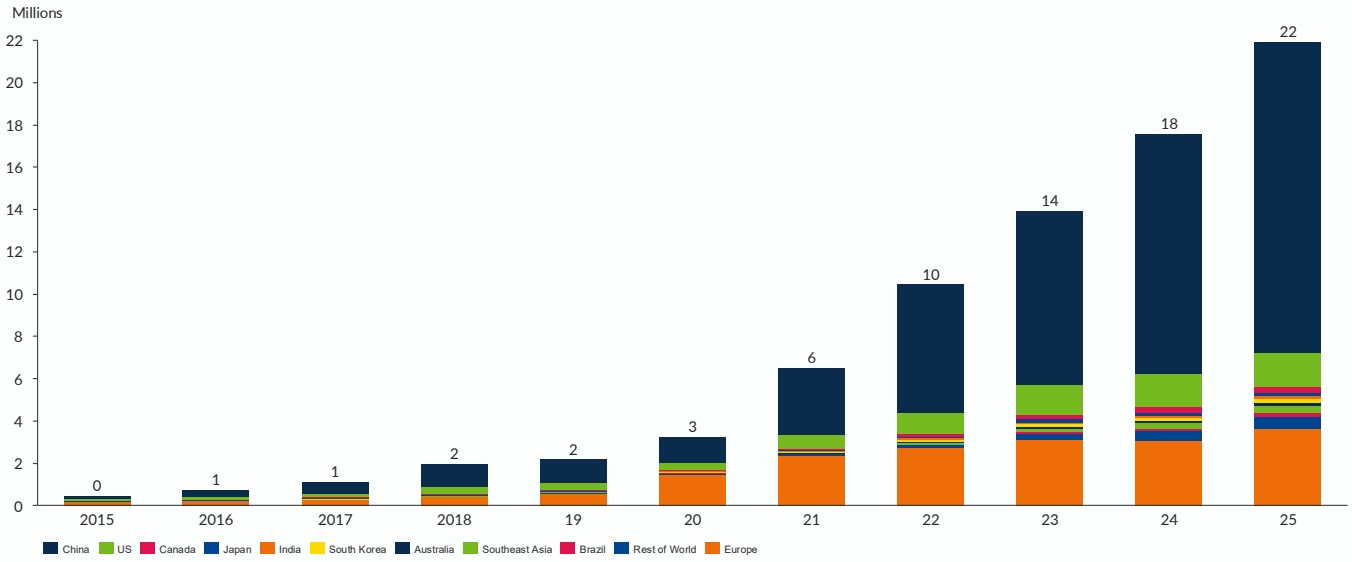
Alongside the challenges of securing financing for this sector, the operational scale and deployment of electrification have required leaders who tackle implementation challenges head-on. At the systems level, **Merryn York** has worked to ensure that electrification does not destabilize the very networks it depends on. As the Executive General Manager of System Design at the Australian Energy Market Operator (AEMO), York has more than 30 years of experience in electricity infrastructure, rule-making bodies, and transmission ownership (e.g., via Powerlink Queensland). She was responsible for planning for the electricity system to achieve net zero by 2050, which involves working out how to integrate millions of EVs, distributed energy resources, renewable generation, storage, and dynamic demand without undercutting grid reliability. Her leadership was central to ensuring that the grid remains robust as transport electrifies.

"I think it's important because it provides an incredibly warm environment to get to know other senior members of the energy industry. I also love the fact that it's global. I actually learn something from coming to Hawthorn Club events because I'm learning about other sectors and other geographies that I don't generally spend a lot of time in."

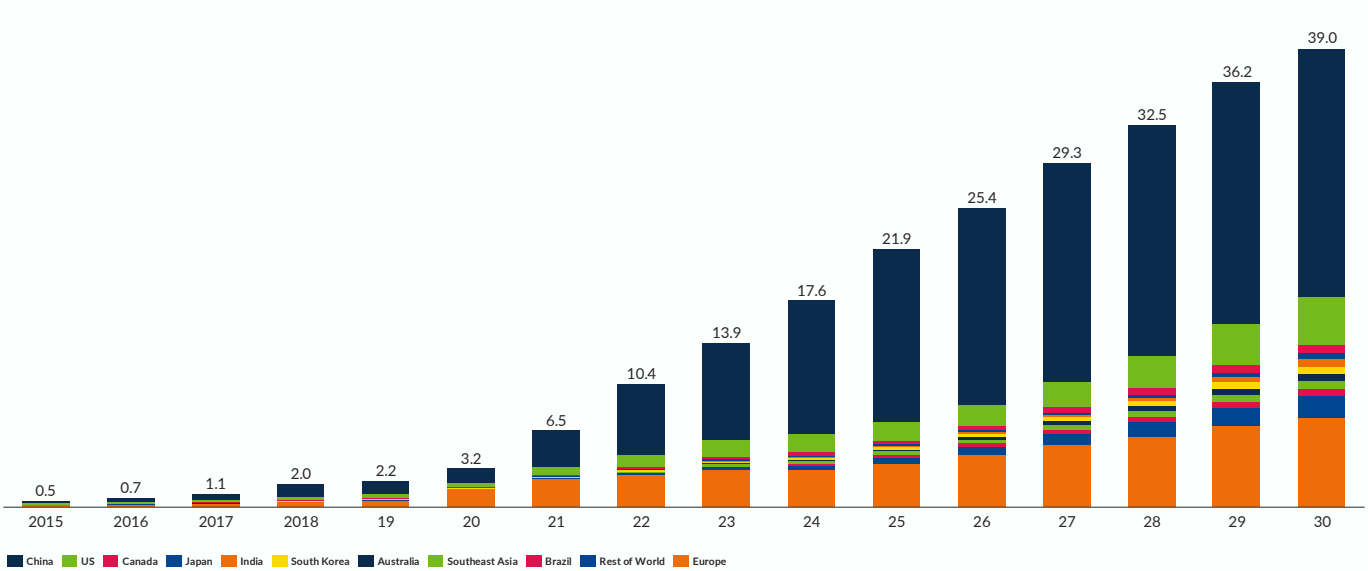
Joanne Spillane, Global Head of Private Capital Markets, Macquarie Group

Finally, the developer–investor bridge is exemplified by the approach taken by **Jackie Funder** (Associate Director, Macquarie Green Investment Group). She mobilizes institutional capital, executes projects, and helps scale large-scale infrastructure. Since joining Macquarie, she has led or supported the development of nearly 2GW of renewable energy projects in Australia, overseen transactions worth billions of dollars in both Australia and the U.S., and managed full project life cycles (development, siting, finance, and operations). Her work helps ensure that the clean power backbone needed for EV charging is built to the scale needed and with the financial discipline required.

Global Near-Term EV Share of New Passenger Vehicle Sales by Market[32]

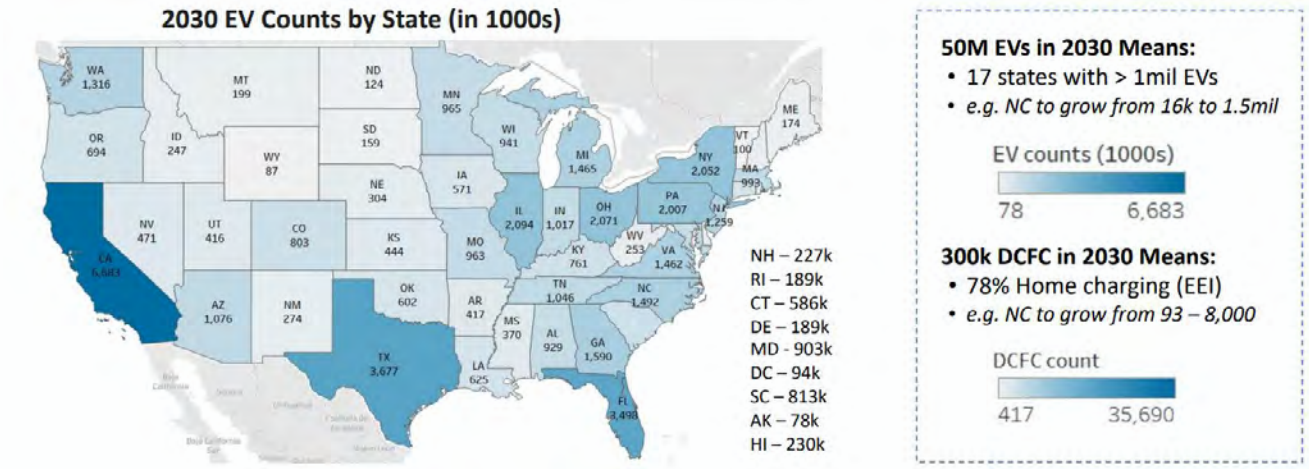


Global Near-Term Passenger EV Sales by Market[31]



31 BloombergNEF (2025). Electric Vehicle Outlook

Global map of geographical production and adoption of EVs, in absolute numbers and/or per capita[32]



Near-term action is critical as States will be very challenged to support this scale of EV and EV charging Infrastructure growth if we delay

North American members, private tour of Restoration Hardware, San Francisco, 30 January 2024

32 Car Group (2020). 2030: At least 1 in 5 vehicles must be EV. What will it take? Retrieved from Car Group

Be the Change—Policy Impact

The impact of clean energy and energy transition policy has been far-reaching. The EU's Renewable Energy Directive, launched in 2009 and progressively strengthened, set binding targets that forced structural change across member states. In the US, state-level renewable portfolio standards and emission reductions targets coupled with federal tax incentives drove deployment at scale.

Beyond these headline initiatives, a new generation of policy tools has emerged. Competitive auctions have replaced feed-in tariffs, driving costs down while ensuring transparent allocation of contracts. Net-zero commitments, now adopted by more than 100 countries—have reframed renewable energy as not just an economic option, but a climate imperative. Grid access reforms, carbon pricing mechanisms, and cross-border interconnection projects have further anchored renewables within long-term planning.

This policy maturation has driven scale and, consequently, reduced deployment costs. Global investment in renewable power surpassed investment in fossil fuels in 2024, reaching more than $2 trillion[33] and supporting millions of jobs in manufacturing, construction, and operations.

Policy has influenced which technologies scale, which markets thrive, and which regions lead. Over the last 15 years, a new generation of leaders has ensured that renewables move from aspiration to foundation — leaders whose foresight, persistence, and strategic vision have defined this global turning point.

Kate Brandt (Chief Sustainability Officer, Google), has embedded sustainability into one of the world's most influential technology companies, redefining how multinational corporations integrate sustainability into global operations. She oversees Google's efforts across data centers, real estate, supply chains, and product teams, ensuring the company's operations align with global sustainability goals and principles of the circular economy.

Brandt notes:

Policy has a critical role to play in key areas, including: supporting the development of advanced energy technology, like advanced nuclear, enhanced geothermal, and long-duration energy storage; and advanced transmission tech, like advanced reconductoring, laying the groundwork for long-term growth with permitting reform that enables transmissions development, and enabling a workforce that can build this infrastructure.

From left: Meade Harris, Kate Brandt, Val Smith, Climate Action Week, London, 24 June 2024

Her perspective illustrates how government and private sector leadership can reinforce one another, creating a unified front in advancing renewable energy and sustainability.

33 BloombergNEF (2025). Global Investment in the Energy Transition Exceeded $2 Trillion for the First Time in 2024. Retrieved from BloombergNEF

Mary Nichols (Distinguished Counsel, UCLA Law), stands out as one of the most influential figures in global environmental governance. During her tenure as Chair of the California Air Resources Board, she oversaw the creation of the first comprehensive cap on industrial greenhouse gas emissions by any major regulatory agency in the world, and she introduced vehicle emissions standards that reshaped the auto industry. These measures not only drove California's rapid decarbonization but also set precedents that informed national and international frameworks. Under her leadership, California became a proving ground for climate policy, showing that ambitious regulation could simultaneously cut emissions, stimulate innovation, and support economic growth. **Nichols**' work continues to serve as a template for governments worldwide.

"I first met Meade Harris when she was beginning to put together a California chapter of The Hawthorn Club. I was then Chair of the California Air Resources Board, a state agency that has played a substantial role in energy policy for decades, most recently as the chief architect of California's climate action plan. I was impressed by her vision but skeptical that we would find a trove of female business leaders to join with the handful of women leading energy policy in state and local government. I have never been so glad to be proven wrong! I am also proud that our state's commitment to climate leadership opened up top-level opportunities for women executives, investors, and entrepreneurs who are shaping the new energy economy."

Mary Nichols, Distinguished Counsel, Emmett Institute on Climate Change and the Environment, UCLA Law

Mary Nichols (left) with Nancy Pfund (right) receiving The Hawthorn Club's Change Agent Award, Global Summit, 11 April 2018

As Chief Investment Officer at Thrive Renewables, **Monika Paplaczyk** (Chief Investment Officer, Thrive Renewables) has been a pioneer. in aligning corporate strategies with policy goals to drive meaningful, large-scale renewable energy adoption. She has championed the importance of UK mechanisms such as the Feed-in Tariff, the Renewables Obligation, Contracts for Difference (CfDs), and the Renewable Heat Incentive in scaling wind and solar capacity. At the same time, she highlighted the urgent need for reforms to planning systems, grid access, and supply chain resilience—bottlenecks that increasingly shape the pace of deployment.

Paplaczyk reflects:

Policy has been the single most important driver of the UK's clean energy transition. Mechanisms such as the Feed-in Tariff, the Renewables Obligation, Contracts for Difference [CfD], and the Renewable Heat Incentive laid the foundation for scaling wind, solar, and other renewables. CfDs now remain a core pillar to support the energy transformation in the UK, but they must be paired with reforms to planning, grid access, and connection timelines—supply chain pressures which are now major delivery bottlenecks.

Monika Paplaczyk deep in conversation, London, 16 October 2022

Lena Parker making sure her point is clear, Global Summit, New York, 26 April 2023

In Australia, policy has paved the way for renewable proliferation since The Hawthorn Club was founded. Lena Parker, General Manager of Energy Solutions at Ventia, described the market evolution over the past 15 years, "In 2010, Australia had just legislated the Carbon Pollution Reduction Scheme—soon repealed. Since then, climate and energy policy has been highly politicized, swinging with each government. Despite this, state-led renewable targets and the federal Capacity Investment Scheme have pushed investment at scale."

From the regulatory pioneers who reshaped global markets to the corporate leaders who are embedding sustainability into multinational strategy and the economists and advisors who are crafting financial frameworks, Hawthorn members have helped shape the environment in which renewable energy can thrive. Their achievements remind us that the transition is as much about governance and vision as it is about megawatts and markets.

The most significant global policies in last 15 years

Policy: California Cap-and-Trade Program
Region: California
Year: 2013

This is a market-based program targeting reduction of greenhouse gas emissions to 40% below 1990 levels by 2030. The program covers about 76% of the state's GHG emissions, including the industrial, power, transportation, and fuel combustion sectors. It includes auctions and allowance trading, with proceeds reinvested into clean energy projects and environmental justice initiatives. It has been linked with Québec's system since 2014. The program has achieved notable emissions reductions and economic benefits while also encouraging innovation.

Policy: EU Emissions Trading System Phase III
Region: EU
Year: 2013

This program creates an expanded carbon market covering more sectors with tougher caps. It is integral to the EU's climate and energy policy framework.

Policy: Paris Agreement
Region: Global
Year: 2015

This is a worldwide binding framework aiming to limit global warming to below 1.5°C through national commitments, pushing energy transitions globally.

The most significant global policies in last 15 years

Policy: Energy reform and clean energy policies
Region: Mexico
Year: 2013–present

These energy sector reforms promote renewable energy auctions, private investments in clean energy, and grid modernization as part of transitioning Mexico's energy mix.

Policy: Capacity Investment Scheme (CIS)
Region: Australia
Year: 2022-present

The CIS is a national program aimed at underwriting private investment in large-scale renewables and dispatchable storage. Through competitive tenders, the Australian Government offers long-term contracts with revenue floors and ceilings thereby reducing financial risk.

Policy: Inflation Reduction Act
Region: U.S.
Year: 2022

This is a comprehensive climate law designed to invest heavily in clean energy, carbon reduction technologies, EVs, and energy efficiency. It provides incentives for renewable energy deployment, supports domestic manufacturing, and incorporates tax credits to accelerate the transition away from fossil fuels. It is currently the largest U.S. federal policy for energy transition.

Work Smarter, Not Harder—Smart Grid and Technology Enablement

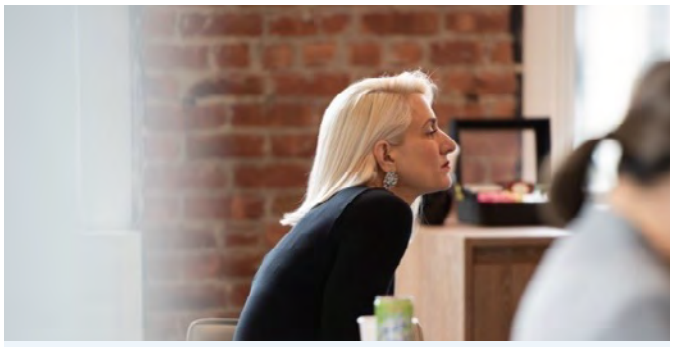
Over the last 15 years, the energy grid has undergone a remarkable transformation, evolving from a centralized, one-directional system into an increasingly dynamic, decentralized, and intelligent network. In 2010, grid management relied heavily on traditional infrastructure with limited integration of renewable energy sources and minimal real-time responsiveness. Smart grid technologies have since revolutionized the way energy is generated, distributed, and consumed. Enabled by advancements in digitalization, artificial intelligence (AI), and Internet of Things (IoT) devices, today's grids are more flexible, efficient, and resilient than ever before.

Smart grids now integrate distributed energy resources such as solar PV and battery storage systems, allowing for real-time balancing of supply and demand. This shift has been critical in managing the increasing penetration of renewable energy, which accounted for more than 30% of global electricity generation in 2025, up from just 20% in 2010[33]. The ability to respond to scarcity and market events in real time has also improved dramatically, with technology platforms enabling near-instantaneous adjustments, in contrast to the slower manual processes of the past.

In the face of unprecedented risks to reliability, increasingly extreme weather, and accelerating power demands, distributed energy resources now play a key role in grid resilience and reliability. Hawthorn member **Audrey Zibelman** (Board, Squadron Energy), has held both corporate and regulatory roles across the industry at a global level and has spent much of her career focused on how to unlock the full potential of demand elasticity and distributed resources. Superstorm Sandy, that hit the Caribbean and US in 2012, epitomized the importance of having additional generation assets close to load. "In the wake of disasters like Sandy," said **Zibelman**, "resilience, affordability, and reliability become paramount, highlighting the need for utilities to embrace distributed energy resources and innovative partnerships to ensure uninterrupted access to electricity."

Audrey Zibleman (centre) with Victoria's Energy Minister The Hon. Lily D'Ambrosio (left) and Amber Stevens, Managing Director, Alvarez and Marsal (right), Melbourne, 15November 2024.

Customers are increasingly central to the debate around energy affordability, reliability, and resilience. Consequently, utility executives focus on how to maintain and enhance infrastructure and generation capacity without increasing customer costs. Hawthorn member **Jaclyn Trovato** (Vice President - Human Resources, Exelon), highlighted that "as technology evolves, the challenge is to enhance grid reliability and affordability while addressing customer anxiety over rate increases and ensuring workforce safety through AI and innovation."



Jaclyn Trovato listening intently, Global Summit, New York, 21 April 2022

33 International Energy Agency. Share of renewable electricity generation by technology, 2000-2030. Retrieved from International Energy Agency

Platforms like Kraken, led by innovators such as Hawthorn member **Charlotte Johnson** (General Manager - Generation, Kraken), have demonstrated how AI and machine learning can optimize grid management and asset use. Kraken's flexibility platform, for instance, enables utilities to respond to market events in seconds, compared to the hours or even days required by traditional grid management systems. This agility not only enhances grid reliability but also reduces costs and emissions by maximizing the use of renewable energy and minimizing reliance on fossil fuel–based peaking plants. **Johnson** reflected, "By prioritizing transparency, flexibility and reliability, [Kraken] technology has enabled us to rebuild trust and create a more engaged, empowered customer base."

Charlotte Johnson talking about AI, Global Summit, London, 16 October 2025. Global Summit, 16 October, London

Florencia Garrido (left) with Alice Gibson, APAC Advisor, The Hawthorn Club (right) at The House of Lords. Global Summit, London 16 October 2025

Similarly, companies like Siemens Energy are driving innovation in grid automation and digital twin technology. These tools provide utilities with real-time insights into grid performance, enabling predictive maintenance and reducing downtime. The result is a smarter, more efficient grid that can adapt to the complexities of a decarbonized energy landscape. Another Hawthorn member, **Florencia Garrido** (Lead Counsel, Siemens Energy), noted that "Siemens Energy is a global leader in energy technology. As an example Siemens Energy provides technology to enormous, grid-connected projects (including wind farms and gas plants). Manufacturing and mobilizing equipment for those projects requires lots of people around the world. Sometimes you have three, four countries that are connected by the same project."

Refueling for Success: Carbon Capture and Sequestration

Carbon capture, utilization, and storage (CCUS) is emerging as a critical technology in the global effort to reduce greenhouse gas emissions and achieve net-zero targets. CCUS prevents carbon dioxide (CO_2) from entering the atmosphere by capturing carbon dioxide (CO_2) emissions from industrial processes, power plants, and even directly from the air. The captured carbon can then be stored securely underground or repurposed for industrial applications, such as enhanced oil recovery or production of building materials.

In 2010, CCUS was still in its early stages of development, with limited deployment and significant challenges in scaling up. The technology was recognized as an important tool for reducing CO_2 emissions, particularly in sectors like power generation, oil and gas production, and heavy industries such as cement and steel manufacturing. However, global CCUS capacity was relatively small, with less than 15 million tonnes of CO_2 being captured and stored annually from anthropogenic sources[34]. At the time, there were approximately 20 large-scale integrated CCUS projects globally, with most focused on enhanced oil recovery applications. The technology faced high costs, limited policy support, and public skepticism, which hindered broader adoption.

Trude Sundset (Chief Technology Officer, Norsk Hydro), a pioneer in CCUS, first at Equinor and later as CEO of Gassnova, noted: "To pioneer a technical solution like CCS, you need 'true believers'—those with the conviction to convince management and the public, and the patience to change minds over time." **Sundset** credits The Hawthorn Club with advancing CCUS through the cross-fertilization of ideas, information, and passion among Hawthorn members.

It is fitting, then, that the Norwegian government's iconic Longship project (also known as "The Northern Lights"), which integrates CO2 capture, transport, and storage, began with **Sundset's** work during her tenure at Gassnova and continued with an investment by Shell, where another Hawthorn member, **Mallika Ishwaran**, is Chief Economist. Speaking of the project, **Ishwaran** reflected that:

"it is perhaps the most notable project in Europe currently. It is a joint venture between Shell, Equinor, and TotalEnergies and is a cross-border project to provide a transport and storage service to emitters in Europe. Northern Lights offers a blueprint for how CCUS could develop around the world, starting with a foundation of strong government support before transitioning to a commercial model once CCUS infrastructure is in place."

Mallika Ishwaran, at The House of Lords, Global Summit, London, 16 October 2025

34 International Energy Agency (2021). CCUS facilities in operation. Retrieved from International Energy Agency

Longship officially completed construction and began transporting CO2 in the summer of 2025, coinciding with the 15-year anniversary of The Hawthorn Club.

In the current landscape, the global capacity for carbon capture and storage is on track to double, with more than 100 million tonnes of CO_2 expected to be captured annually once projects currently under construction become operational[35]. A geographical analysis reveals that North America leads in CCUS deployment, with significant projects in the US and Canada. Europe and the Asia–Pacific region are also expanding their CCUS infrastructure, driven by supportive policies and investments.

A UK CCS-first is Encyclis' waste-to-energy plant with CCS plant, which is set to capture 370,000 tonnes of CO2 per annum. **Victoria Merton** (Director - Policy and Sustainability, Encyclis), another long-time Hawthorn Club member, commented on this project: "CCS is now a reality. We reached financial close at the end of September [2025] and we will begin construction on our CCS plant on an energy from waste plant in the coming weeks. So it is a very exciting time. For us, being one of the first industrial emitters to capture carbon means that we are able to provide proper decarbonization for industry and energy for waste."

Hyperion Water Reclamation Plant Site Tour, LA 2018

Site Tour of NRG's Petra Nova CCS Project, Texas, 2018

35 Envirotec Magazine (2024). Installed CCS capacity on track to double. Retrieved from Envirotec Magazine

Across the Atlantic, the Petra Nova project in Texas is a landmark in CCUS technology. Launched in 2017, it captures CO_2 emissions from the W.A. Parish coal-fired power plant. Using advanced post-combustion technology, the project captures approximately 1.4 million tonnes of CO_2 annually, which is then transported via pipeline for enhanced oil recovery[36]. Petra Nova has proven the commercial viability of large-scale CCUS, supported by government grants and tax credits that offset initial costs. This project serves as a model for integrating CCUS into existing industrial infrastructure.

Vicki Hollub, (CEO, Occidental Petroleum) another longtime Hawthorn member, has championed the use of captured CO_2 for enhanced oil recovery, turning emissions into a valuable resource. **Hollub** noted:

"Our [Oxy] strategy is very unique and very differentiated from other oil and gas companies in that taking CO_2 out of the atmosphere and using it to get more oil out of the reservoirs we have in the US is incredibly important for the continuation of our energy independence here in the US."

"Passion, perseverance, and the philosophy that failure is not an option are the qualities I look for in a leader. When I look around the room at a Hawthorn Club event, I see them reflected in the members. The Club is a one-of-a-kind forum in which you can share business insights on the energy transition with other global thought-leaders."

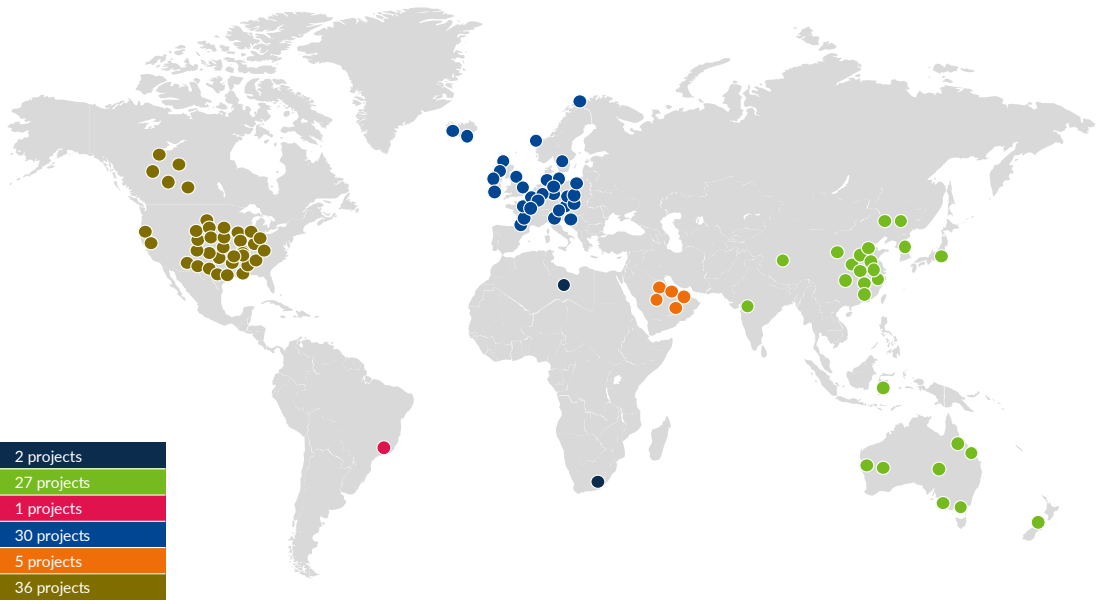
Vicki Hollub, CEO, Occidental Petroleum

These leaders highlight the need for innovation, collaboration, and policy support to accelerate CCUS deployment. While CCUS holds immense potential, challenges remain, including the need for extensive infrastructure and long-term storage solutions. However, declining technology costs and increasing government support, such as the US 45Q tax credit, are making CCUS more accessible. The integration of CCUS with renewable energy and hydrogen production further enhances its role in the clean energy transition.

Vicki Hollub expressing her passion

36 U.S. Dept of Energy (2017). Petra Nova – W.A. Parish Project. Retrieved from U.S. Dept of Energy

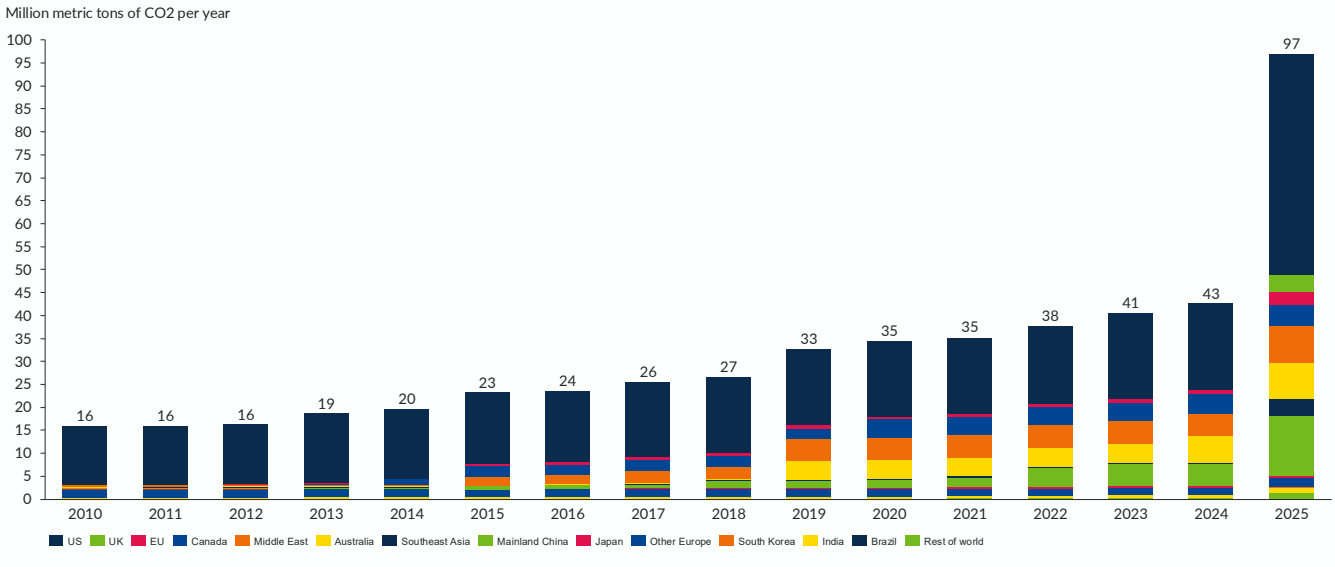
Overview of Existing and Planned CCUS Facilities[37]



No of projects by region

Africa	2 projects
Asia Pacific	27 projects
Central and South America	1 projects
Europe	30 projects
Middle East	5 projects
North America	36 projects

Historical and proposed capture capacity by market[38]



37 International Association of Oil & Gas Producers (2021). Overview of Existing and Planned CCUS Facilities. Retrieved from International Association of Oil & Gas Producers

38 BloombergNEF (2025). Historical and proposed capture capacity by CO2 source. Retrieved from BloombergNEF

Conclusion

Over the last 15 years, the story of the global energy transition has also been the story of The Hawthorn Club. Across technologies, markets, and regions, Hawthorn members have turned ambitious goals into concrete projects, policies, and investments. Their work shows change happens when expertise, capital, and courage come together—and when women are in the rooms where decisions are made.

Hawthorn leaders have helped redesign energy and transport, accelerating renewable energy deployment at legacy fossil fuel generation plants, scaling offshore wind and floating solar, and advancing EVs—showing decarbonization is a series of balanced choices about reliability, affordability, and justice. Their progress rests on aligned markets, policy, and infrastructure: robust policy frameworks that unlock investment, smarter grids that manage variable demand, and strategic digitalization that reinforces clean power. On frontier solutions like carbon capture, Hawthorn women are building blueprints, from Norway to Texas, for industrial decarbonization in hard-to-abate sectors.

Taken together, these contributions paint a clear picture: the energy transition is not a single technology, market, or policy. It is a system-wide transformation driven by leaders who share knowledge, challenge assumptions, and support each other. As members have reflected, The Hawthorn Club has provided a uniquely trusted forum for those conversations—one where senior women can compare experiences across geographies and sectors, spark new collaborations, and amplify each other's impact.

"I've been coming here for about five years now. I have been to so many other conferences, part of so many other groups, and I've served on advisory boards for other women's group. But what I found about The Hawthorn Club is that the group of women are unique and it is unlike any other place."

Deborah Merril, President—Retail, bp

The next 15 years will demand even more: faster deployment, deeper integration of renewables, rapid scaling of storage and CCUS, and honest engagement with communities affected by change. The women of The Hawthorn Club have already shown what is possible when leadership is inclusive, ambitious, and grounded in real-world execution. Their example offers both a record of what has been achieved and a roadmap for what must come next in building a cleaner, more resilient, and more equitable energy system.

Hawthorn Club Team, Global Summit, London,16 October 2022

APAC Members discuss green investment, Melbourne, 15 March 2023

North American members enjoy a conversation on blended finance while blending wine, Napa Valley, 5 February 2025

Meade Harris Joined Alix Steel on Bloomberg TV to Discuss the Hawthorn Club, 2018

About The Hawthorn Club

The Hawthorn Club is the international network for executive women in the energy industry. Our mission is to promote the appointment of women to senior corporate positions and boards; to facilitate gender diversity within the energy sector.

For more information, visit www.thehawthornclub.com

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