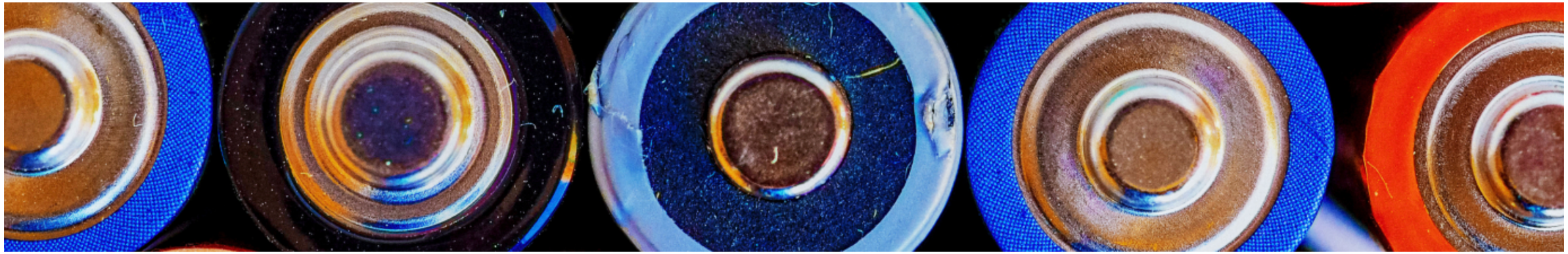

ING
Banking on Electrification.
do your thing

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Financing the system: zoom-ins



Clean Power

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Transport & Mobility

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Building & Homes

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Steel

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Foreword



Steven van Rijswijk
Chief executive officer, ING

3 November 2026

The energy transition is entering a different phase. We know much more clearly which technologies and other solutions can help us decarbonise our economies. The challenge now is deploying them at the scale and pace required.

Electrification will be central to that. As clean power becomes a larger part of the energy system, more of the economy can move away from fossil fuels, encompassing industry and transport, buildings and heating. That makes electrification not only a climate issue, but increasingly an economic one. It affects the resilience of energy systems, the competitiveness of companies and ultimately the ability of economies to grow.

But making that shift requires enormous investment. It requires investment in clean energy generation, grids and storage, but also in the technologies and infrastructure that allow companies and households to use that electricity. And these investments do not happen in isolation. A new industrial asset is of limited use if the grid connection is not there. A technological solution will not scale if businesses cannot make the economics work.

That is why the proposed COP31 ambition to increase electrification to 35% of final energy demand by 2035 matters. It gives governments a direction. The harder question is how to turn that ambition into investment on the ground.

This is where I believe we need to be very practical. From our work with clients across different sectors and markets, we see three things repeatedly determine whether investment happens at scale: the technology needs to be mature, policy needs to provide sufficient clarity and support and companies need enough certainty around future revenues to invest. Finance is part of that equation, but finance cannot solve it alone.

At ING, we want to support our clients in their transition to a low-carbon economy. One of the ways we can do that is by putting our balance sheet and expertise behind the technologies, infrastructure and business models that can make the greatest difference, while working closely with our clients as they transform their businesses.

There is significant capital available for the transition. The challenge is creating enough viable projects for that capital to find its way into. Governments and regulators therefore also have an important role in creating the conditions for private investment - through clear and consistent policy, effective incentives and, where needed, instruments that allow public and private finance to work together.

This publication looks at real-world cases where those conditions are already coming together, where remaining barriers can be lifted, and what we have learned from financing our clients' transition. It also shows why electrification needs to be approached as a system. Energy supply, grids, infrastructure, technology, demand and finance all have to move together.

COP31 is an opportunity to build greater momentum behind that shift. The ambition is important. But ultimately, progress will be measured by what gets built, financed and adopted in the real economy.

That is where the next phase of the transition will be won.

“As countries come together at COP31, we must focus on turning energy ambitions into investment and implementation at scale.

Banks have an important role in accelerating the energy transition, not simply by providing capital, but by helping businesses turn plans into investable projects.

They cannot do this alone. Predictable policies, credible demand and effective risk-sharing are also essential.

I welcome ING’s contribution to this vital discussion, particularly its focus on how industry, finance and governments can work together to move more projects from ambition to delivery."



Fatih Birol
Executive Director of the International Energy Agency

Electric dream: from vision to reality

The United Nations secretary-general has set out a vision of a new clean-energy era centred on renewables, energy efficiency and electrification - accelerating the transition away from fossil fuels while expanding access to clean, affordable energy[1].

To achieve this vision of the electrified economy of the future, the imperative now is to focus on implementation to scale in the real economy. There is a lot to be gained. UN SG António Guterres called it “a shift in possibility”.



The foundation for this is an efficient, integrated power system dominated by renewables and enabled by interconnected grids, storage and flexible demand. Widespread electrification turns clean power into cleaner mobility, more resilient and comfortable buildings and productive industry. Electric vehicles and public transport improve urban air quality, resulting in more livable cities. Efficient buildings and houses use heat pumps and smart technologies, and industry adopts electric equipment and innovative production processes. Businesses benefit from lower operating costs, more efficient processes, and higher productivity and reliability, which improves their competitiveness.

So, what does it take to get there? Accelerating electrification requires affordable clean power and upgraded grid infrastructure. Electric demand needs readily available electrified technologies and stronger demand signals. All of this benefits from supportive policies and access to capital.

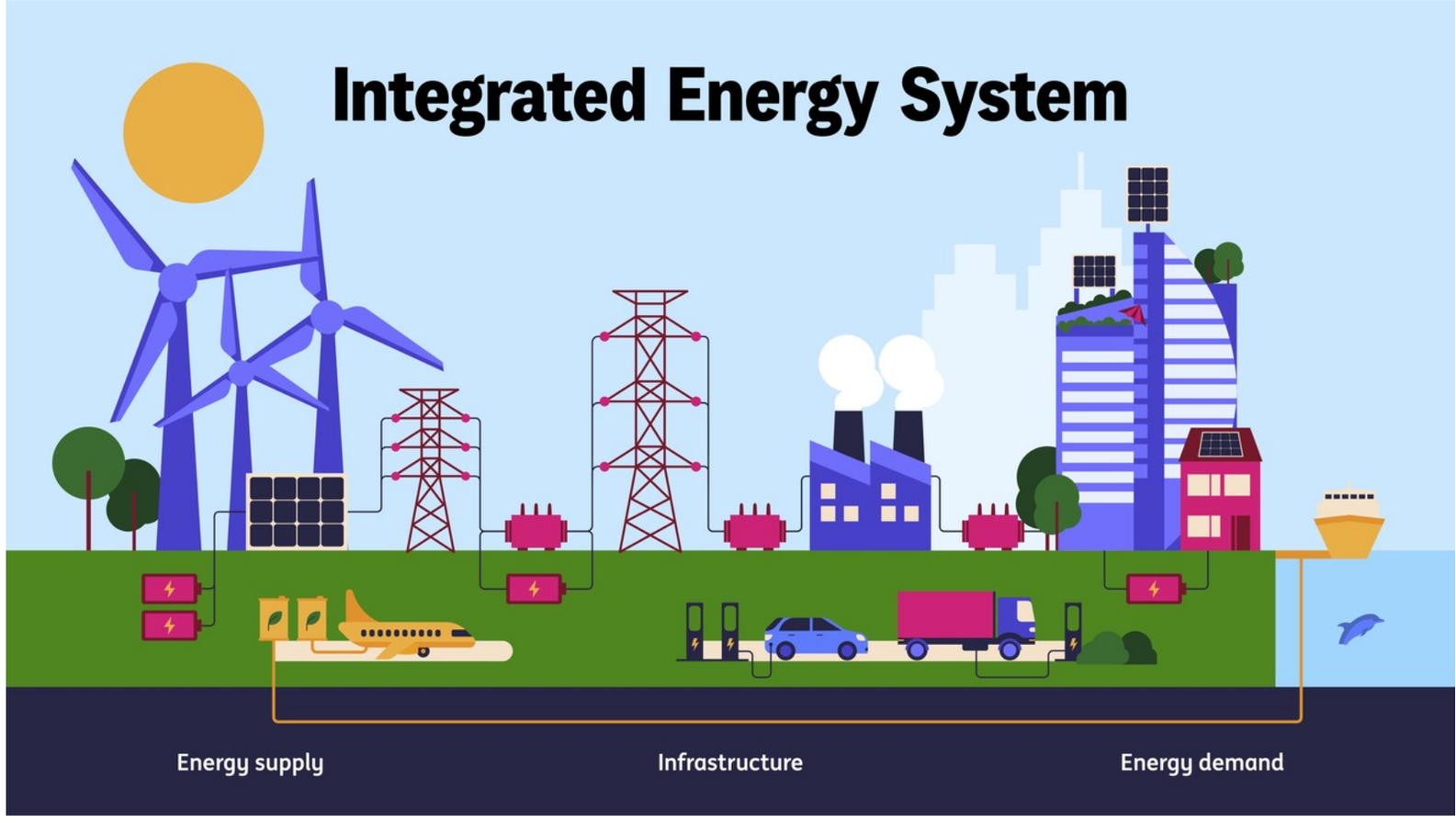
1. UN Secretary-General: "Supercharging Clean Energy Will Repair Humankind’s Relationship with Climate, Fuel Economic Growth"

Electrification as the key lever of the energy transition

The most effective way to drive down emissions and ‘defossilise’ the energy system at scale and speed is to electrify the real economy with a massive increase in renewable electricity supply, a stronger and smarter grid, and storage capacity such as batteries, which are among the fastest scaling technologies ever. This is more than a fuel swap: electricity delivers heat and power far more efficiently than fossil fuels.

A successful energy transition requires three interconnected changes across the energy system:

- replacing fossil fuels with low-carbon energy, primarily renewable electricity
- electrifying transport, buildings and industry wherever possible
- and deploying low-carbon fuels for activities that remain difficult to electrify energy



An integrated low-carbon energy system is one where power is predominately generated from renewable sources (like wind & solar), supplemented by low-carbon alternative fuels. A modern electricity grid uses battery storage and smart connections & load-balancing to ensure reliable delivery of power to all end-users in industry, mobility & transport, and homes & buildings. In hard-to-electrify sectors such as aviation and shipping, low-carbon alternative fuels have replaced fossil fuels.

Recognising electrification as the key lever of the energy transition, the IEA and COP31 Presidency have proposed a global ambition to increase electrification to 35% of final energy demand by 2035. Electrification is already expanding across mobility, heating, industry and digital infrastructure, making access to affordable, reliable clean power an increasingly important driver of investment, productivity and competitiveness.

Transport illustrates the broader opportunity of taking a systems approach. Electric vehicles, trucks and buses can be powered by renewable electricity while increasingly supporting grid stability through smart charging and storage capabilities.

Although not every activity can yet be electrified, the opportunity is already substantial. Research from Ember[2] suggests that up to 75% of global end-use energy demand could be electrified using commercially available technologies, including much of transport, buildings and industry. Continued investment in grids, storage including batteries, and enabling infrastructure can further expand this potential over time.

For hard-to-electrify sectors, clean electricity will also underpin the production of low-carbon fuels that can support industrial decarbonisation where direct electrification remains challenging.



The benefits of this transformation extend beyond emissions reductions. Greater electrification can improve energy affordability, strengthen energy security, reduce exposure to volatile fossil fuel markets and support more resilient energy systems – which in turn would improve economic competitiveness, resilience and quality of life while supporting sustainable growth across economies and communities.

Realising these benefits will require supportive policies, scalable business models, strong partnerships and sustained investment. With global clean-energy investment needs exceeding US$ 4 trillion[3] annually, accelerating project development, implementation and bankability will be essential. As governments, businesses, investors and financial institutions increasingly focus on delivery, as called for by this year's "Implementation COP", there is a significant opportunity to mobilise capital, strengthen investment readiness and scale the technologies and infrastructure needed for an increasingly electrified economy. Banks can contribute by financing solutions, sharing expertise and engaging constructively with clients, policymakers and other stakeholders to help accelerate implementation in the real economy.

The opportunity of such a fundamental economic transformation is huge. However, achieving the ambition of a predominantly electrified society will require more than targets and technology. It will require a favorable and stable policy environment, business models, partnerships and investment at a scale that can accelerate implementation across the real economy.

2. Ember 'The Age Of Power' [2026]
3. World Economic Forum "IEA: Clean energy investment must reach $4.5 trillion per year by 2030 to limit warming to 1.5°C"

Improving bankability

Financing for renewable power generation has advanced rapidly, but progress in energy infrastructure, industrial electrification and low-carbon fuels has been slower. At the same time, many companies, particularly in energy-intensive sectors, are ready to invest and have credible transition plans in place.

Investment often remains constrained, however, by infrastructure gaps, lengthy permitting processes, policy uncertainty and limited demand visibility.

Many low-carbon technologies have moved beyond proof of concept and align with long-term policy objectives. The next challenge is accelerating deployment while creating the market conditions, revenue certainty and demand signals needed to bring solutions to commercial scale and attract private capital.

From a financing perspective, the opportunity is clear. The willingness of businesses and financial institutions to invest is often stronger than the conditions needed for capital to flow at scale. Strengthening project bankability can support industrial competitiveness, energy security and economic resilience while helping accelerate decarbonisation.

Across sectors, several common themes emerge:

- Long-term demand visibility remains limited in some markets
- first-of-a-kind and scale-up projects often carry risk profiles that exceed available risk-sharing mechanisms
- fragmented implementation of policy frameworks can create uneven investment conditions; and
- varying market conditions across jurisdictions can affect the business case for low-carbon investment.

Addressing these challenges represents a shared opportunity for policymakers, industry, investors and financial institutions to accelerate implementation.

Experience shows that large-scale mobilisation of private finance is most effective when three enabling conditions are in place:

1. technology maturity
2. supportive policy frameworks, and
3. revenue certainty.

These conditions helped accelerate the deployment of renewable energy and can now be applied more broadly to areas requiring greater momentum, including industrial electrification, electric heating, clean mobility and low-carbon industrial processes.

As attention from governments increasingly shifts from target-setting to implementation in line with the action agenda of COP31 (dubbed the “Implementation COP”), improving investment readiness and bankability will be critical to scaling electrification and other decarbonisation solutions. Financial institutions can contribute not only through financing, but also by sharing market insights, structuring innovative financing solutions, supporting risk allocation, and engaging constructively with clients, policymakers and partners to help create the conditions that enable investment at scale.

This includes helping identify which projects are reaching bankability, where barriers remain, and how policy and market frameworks can evolve to unlock further private capital.

The terms ‘transition finance’, ‘green finance’ and ‘sustainable finance’ overlap substantially and vary by framework and jurisdiction. This publication uses the term ‘financing/banking the [energy] transition’ throughout, to refer to providing private finance (and related advisory services) for activities that are vital to the transition to a low-carbon, nature positive and inclusive economy.



The new era of financing the transition

Financing focused on activities that substantively advance the transition

Financing the transition has entered a new era. Climate considerations are increasingly embedded in regulation, risk management and investment decision-making, while science-based assessments help inform how financial institutions evaluate transition risks and opportunities. At the same time, governments are balancing decarbonisation objectives with growing priorities around energy security, affordability and competitiveness. These realities can create a disconnect between global net-zero ambitions, the pace of implementation, and where companies are on their individual transition journeys.

Meanwhile, climate risks continue to grow. The challenge is no longer simply setting targets, but accelerating implementation and scaling solutions that can support the transition in the real economy. The focus increasingly needs to be on mobilising capital towards activities that can deliver meaningful impact while strengthening economic resilience and competitiveness.

For banks, this reinforces the importance of supporting clients by financing the technologies, infrastructure and business models needed for a low-carbon economy. When policy frameworks, infrastructure, market demand, data and technical capabilities align, financial institutions can deploy capital more effectively and help scale transition solutions more rapidly.



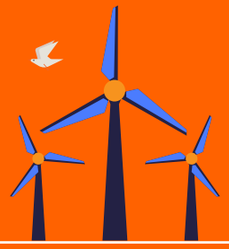
Experience across the energy transition shows both significant progress and substantial opportunities for further implementation. Renewable power generation has scaled rapidly, while areas such as grid expansion, industrial electrification, sustainable fuels and low-carbon hydrogen require additional momentum. Strengthening investment readiness and bankability in these areas can help unlock larger flows of private capital and accelerate deployment at scale.

ING remains committed to supporting clients in their transition. Our Terra approach has helped build sector expertise and deepen understanding of real-economy decarbonisation pathways.

Building on this foundation, there is an opportunity for an even stronger focus on enabling implementation, creating investable opportunities and directing capital towards the systemic changes that can accelerate the transition.

Electrification, grid development, low-carbon fuels and industrial decarbonisation represent important areas where collaboration between governments, industry, investors and financial institutions can help unlock investment. By combining capital, expertise and engagement, banks can contribute to scaling the solutions that support a more resilient, competitive and low-carbon economy.

See the zoom-ins on:



Clean Power

View



Transport & Mobility

View



Buildings & Homes

View



Steel

View

ING's climate approach

At ING, our ambition is to help our clients in their transition to a low-carbon, nature-positive, and inclusive economy – because it matters to us as a bank, to our clients and to society.

To support clients in their own transitions, we put our advice, expertise and financing to work in three ways:



Drive down emissions
Supporting businesses in their transition to net zero

Build up a sustainable future
Financing technologies and solutions for a low-carbon world





Include everyone
Finding new ways to enable people to stay a step ahead on climate

We have more than a decade of experience in financing the transition to a low-carbon economy. To learn more about our approach and commitments, please see the sustainability statement of ING's annual report, prepared in accordance with the EU's Corporate Sustainability Reporting Directive (CSRD).

Society is transitioning to a low-carbon economy. So are our clients, and so is ING. We finance a lot of sustainable activities, but we still finance more that's not. See how we're progressing at ing.com/climate.

Making electrification bankable: priorities for action

Electrification of the real economy, powered by renewables-based electricity, is a key pathway to decarbonisation and net-zero goals. Yet the benefits of electrification will only be realised if renewable power generation, grid infrastructure, storage, batteries, flexibility, charging networks and electrified end-uses are planned and delivered as one system.

Governments cannot finance the transition alone; banks cannot make unviable projects bankable simply by increasing their risk appetite; and businesses cannot make long-term investment decisions without the infrastructure, policies and demand on which those investments depend. The transition becomes possible and financeable when these actors move together.

Through working across multiple companies, sectors and markets, systemically important banks like ING have a vantage point across the economy to understand where projects repeatedly reach – or fail to reach – bankability. Therefore, banks also have an important contribution to make in feeding those insights to policy makers, companies and other market participants to help identify where interventions will have the greatest systemwide effect.

Based on our experience over recent years and through the types of examples shared in the remainder of this paper, three priorities emerge for action across the system:

1. **Plan and invest in electrification by treating it as an interlinked system and focusing on the activities that have the greatest potential to unlock progress.**

2. **Share the financial risks to build maturity and revenue certainty, to establish markets, not only assets in isolation.**

3. **Create stable policy and regulatory frameworks that give investors confidence beyond any specific political cycle.**

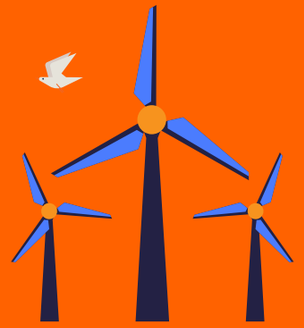
These action priorities help set an agenda for all of us striving to achieve the electrification of the real economy.

At ING, we continue to support our clients and seek opportunities to expand financing for the energy transition, focusing on unlocking those parts of the system that will drive urgent change. And, because our belief is that the path ahead demands a systemwide approach, we look forward to engaging with others whose goal is to accelerate the transition to advance the three priorities we have set out here.



Back to overview

Clean Power



Clean power is the foundation of the integrated low-carbon energy system. Wind and solar dominate new energy capacity additions globally, and can be deployed relatively quickly compared to fossil-fueled power assets[4] – helping to accelerate both the energy transition and electrification of the economy.

Priorities for implementation

Generating more clean electricity is not enough. Grid and storage capacity must keep pace, while buildings, transport and industry need the technologies and infrastructure to use those electrons.

The scale of the grid challenge is significant. The IEA reports that more than 2,500 GW of renewable, storage and large-load projects are stalled in grid-connection queues, and that more than 80 million kilometres of grid needs adding or refurbishing by 2040. Alongside grid expansion, 'behind-the-meter' projects – where energy generation and storage technologies are located in homes, businesses or industrial sites – can alleviate strain on the grid and help provide consumers with energy independence. And virtual power plants (VPPs) that connect decentralised energy assets can come online much faster than new centralised grid capacity.

Clean electricity can also support sectors that are not yet suitable for direct electrification. Through electrolysis, green hydrogen is produced to make alternative low-carbon fuels including green ammonia, e-methanol and synthetic aviation fuel, while electricity can also power processes that convert biomass, waste and captured carbon into fuels.

Bankability

Our view is that electrification is a capital realignment challenge – with a shift required from an operational expense system (buying and then burning fossil fuels) to capital expense (build up the renewable generation, infrastructure and batteries that will deliver a reliable flow of electrons at negligible additional cost).

Private capital is available at scale where projects offer predictable revenues and manageable risks. Long-term auctions, power-purchase agreements and contracts for difference can reduce price exposure, lower financing costs and provide sufficient certainty for investment. Distributed generation requires similarly transparent arrangements, including proportionate tariffs or net-billing mechanisms and accessible financing for households and SMEs.

The role of the ecosystem

ING's ability to finance clean-power and energy-storage projects at greater scale depends partly on the wider policy, regulatory and commercial environment. Closer coordination between governments, regulators, project developers, utilities and financial institutions can help create more investment-ready projects and enable capital to be deployed with greater confidence.

Governments can support investment through stable long-term direction, including clear net-zero commitments and energy-storage targets. Investment incentives, tax credits, grants, loan guarantees and public-private structures can improve project economics and help mobilise private finance. Greater policy predictability and efficient permitting can further improve investment readiness.

Regulators can provide clear and durable market rules that recognise the value of storage, support viable business models and simplify grid connections. A more predictable market design can give investors and lenders greater confidence in future revenue opportunities.

Battery project developers and sponsors can strengthen bankability by securing land and permits, establishing robust operating strategies and demonstrating credible revenue models. Strong project preparation and growing performance evidence can reduce uncertainty and make emerging storage assets easier to finance.

Grid operators and utilities can incorporate storage into long-term resource planning and explore flexible capacity, contractual and commercial models. More predictable revenues would strengthen project bankability while allowing utilities to benefit from the flexibility that storage provides.

Banks and institutional investors, including ING, can complement these efforts by continuing to strengthen their technical and financial expertise in battery storage and by developing financing structures suited to evolving storage revenue models. As operating evidence grows, greater standardisation can improve risk assessment and open the market to wider pools of capital.

Together, these actions can reinforce one another: clearer policies and market rules support better-prepared projects; stronger projects make it easier for utilities to enter into appropriate agreements; and more predictable revenues and operating data enable banks and investors to provide financing at greater scale. In turn, this collaborative approach would support a more resilient power system and the continued integration of renewable electricity.

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4. The IEA indicates a delivery timeline of 1-5 years for new renewable projects versus 5-15 years for new grid infrastructure

Financing the build-up of renewable power supply

Building up the affordable supply of clean power alternatives is a necessary and powerful opportunity for the energy transition. ING seeks to play an important role in financing these alternatives – such as offshore and onshore wind and solar power generation – which are helping to reduce society's dependence on existing, fossil fuel-based power.

That's why, in December 2023, in line with the call for action from the international community made at COP28 in Dubai, we committed to tripling our target for financing of renewable power – aiming for €7.5 billion of annual commitments by 2025, up from our earlier €2.5 billion target set in 2022. In 2025 we committed €9.6 billion to the financing of renewable power generation (where financing refers to the amount we commit to our clients, either as ING or via other parties involved in the transaction).

TenneT: public and private partnership to shift the system

Although public finance is necessary for funding the upgrade of grid infrastructure, public support and private capital can work positively together to finance strategic infrastructure that unlocks investment elsewhere in the energy system.

ING acted as Active Joint Bookrunner on electricity transmission system operator **TenneT Netherlands**' €2.5 billion dual-tranche Green Bond transaction, supporting the company's investment programme to expand and strengthen the Dutch electricity network. This was TenneT NL's second green bond since receiving an irrevocable and unconditional State Guarantee from the Netherlands. Proceeds will finance or refinance eligible green investments in electricity transmission infrastructure, equipment and connection services that support the decarbonisation of electricity networks and renewable energy integration.

Neoen: taking a holistic view to drive progress

Scaling clean power is not only about financing individual assets; flexible financing structures can help unlock entire pipelines of projects, allowing capital to move at the pace of deployment.

Neoen, one of the world's leading renewable energy companies, has an ambitious pipeline of wind, solar and battery projects across Europe. ING is helping to fast track the implementation of those projects with a tailored financing solution that enables flexible and efficient funding. As mandated lead arranger and hedge provider we played a key role in structuring this innovative €200 million revolving warehouse facility that's intended to help accelerate the energy transition of the countries where Neoen operates.



Back to overview

Transport & Mobility



Electric mobility is one of the most immediate opportunities to reduce oil use and improve energy efficiency. Electric vehicle (EV) adoption is rapidly accelerating, although unevenly across geographies. Passenger EVs are now mainstream in several markets, and commercial fleets such as trucks and busses are following suit, driven by total cost of ownership advantages[5] and regulatory pressure.

Priorities for implementation

The transition is moving quickly, but its continued progress increasingly depends on charging infrastructure keeping pace. Drivers and fleet operators need convenient and reliable charging in the form of public fast-charging networks as well as suitable connections at homes, workplaces and depots. Charging can also become part of a more flexible integrated energy system. Smart charging and well-designed stations can align demand with renewable generation, reduce peaks and potentially provide grid services.

Bankability

Our view is that the decarbonisation of transport and mobility depends on scaling up charging infrastructure. We have seen in the last few years how EV infrastructure is a maturing asset class, creating growing opportunities for commercial finance.

We focus on supporting and developing new sustainable technologies and markets that are crucial to unlocking progress in the energy transition, but remain subscale. Our intention is to help grow them to the point of being conventionally bankable, and our experience with mobilising capital for charging infrastructure has proven that model.

We are learning that key success factors include linking EV infrastructure companies into the wider mobility ecosystem and taking an innovative and flexible view of what is needed to finance their growth over time.

The role of the ecosystem

Scaling electric mobility requires charging infrastructure to expand in step with EV adoption - including high-power and ultimately megawatt charging along major routes. Coordination between transport authorities, grid operators, logistics companies and charging providers can help create a larger and more predictable pipeline of bankable charging projects.

Governments can support investment through stable, long-term policies for EV adoption, including clear timelines for phasing out internal combustion vehicles. Incentives for charging infrastructure, investment in grid expansion and support for strategically located charging corridors can further improve the commercial viability of projects. Guarantees and public-private partnerships can complement private capital, particularly for earlier-stage investment, strengthening commercial viability and investment readiness.

Regulators can complement these efforts by accelerating permitting and grid-connection approvals and by establishing transparent electricity tariffs. Greater alignment of technical standards, payment systems and interoperability requirements across jurisdictions would reduce complexity across markets and improve the predictability of costs and revenues for financier.

Infrastructure developers and project sponsors can strengthen bankability by prioritising high-utilisation sites, securing long-term site and power agreements, and developing scalable operating platforms. Reliability and a strong customer experience can increase utilisation, supporting the predictable cash flows needed for long-term financing.

Site owners, including retailers, highway operators and real-estate owners can enable investment by making suitable high-value locations available and entering into long-term leasing arrangements. Integrating charging with retail and other services can create additional value, while greater certainty over locations and operating conditions can improve project bankability.

Banks and institutional investors can contribute through more standardised financing frameworks, debt structures aligned with the operating life of charging assets, and green and blended-finance structures. As the operating track record of these projects grows, a stronger evidence base and experience can support more consistent risk assessment and mobilise capital at greater scale.

Together, these contributions can reinforce one another: clear policy and efficient regulation support stronger project pipelines; suitable locations and well-developed projects improve revenue certainty; and more predictable performance enables financing at greater scale. Through coordinated action, stakeholders can help turn more charging-infrastructure opportunities into investable projects, enabling financiers to play a more impactful role in the shift towards electric mobility.

5. IEA: Global EV Outlook 2026

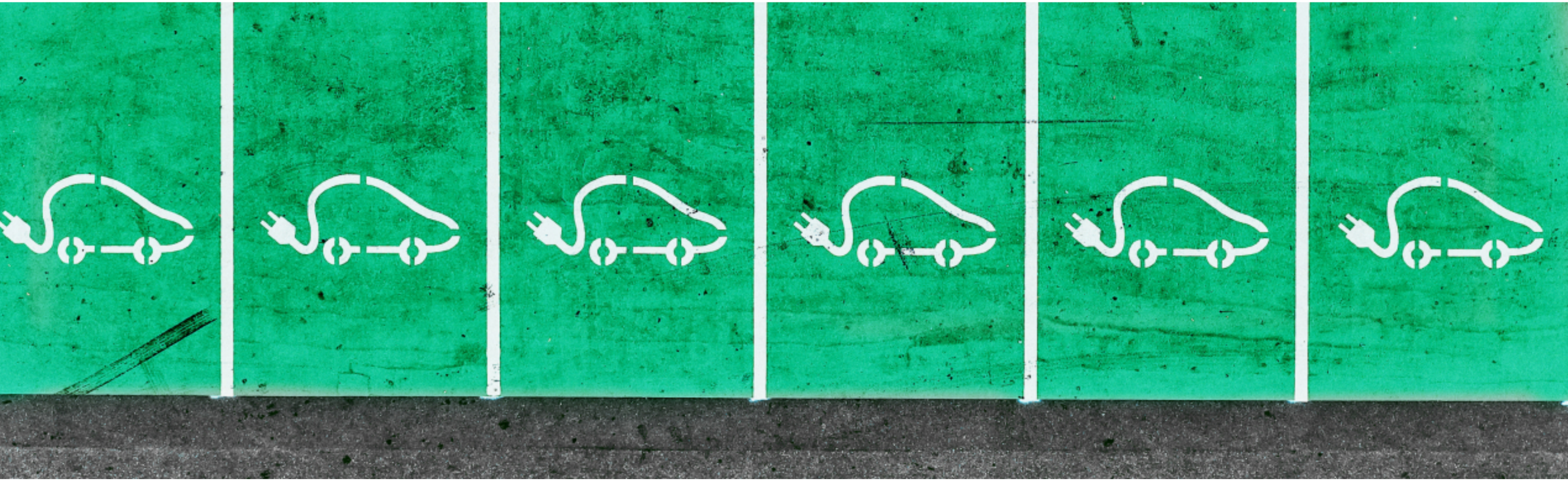
We help our automotive clients by financing their EV production, and support the expansion of charging infrastructure and smart charging systems. We combine strategic advisory, debt structuring and financing to help clients attract capital and scale the infrastructure that's needed to increase EV adoption and further develop charging into a strategic asset for the economy.

Fastned: increasing flexibility to finance growth

Fastned is a leading European ultra-fast electric vehicle charging operator. ING supported Fastned in structuring and raising up to €200 million via a green loan facility in 2026 to scale its charging network in Belgium and Switzerland, with additional capacity to support further expansion across other European markets. This transaction demonstrates ING's increased confidence in EV charging as a mature, investable class thereby creating opportunity for more private capital to flow into this domain. It is transactions like these that will enable the clean electrification of primary energy use and reduce dependence on fossil fuels.

GreenWay: financing the scale up of charging infrastructure

GreenWay, a leading provider of electric vehicle charging solutions across Central and Eastern Europe, continues to expand its network – particularly in Poland, one of Europe's fastest-growing yet still underpenetrated EV charging markets. ING is supporting this expansion by structuring and helping to raise a green loan facility of up to €138 million. This is another transaction that highlights growing investor confidence in EV charging infrastructure and supports the deployment of the charging network needed to accelerate the electrification of road transport across the region.



Back to overview

Buildings & Homes



Improving the electrification and energy efficiency of buildings and homes is critical to achieving the transition to a low carbon future, as buildings account for a large share of energy consumption and emissions.

That's why the COP31 Presidency has made resilient and efficient cities a core pillar of its action agenda for the 2026 UN Climate Change Conference, aiming to achieve agreement on a new global target of reducing energy consumption intensity in the building sector by at least 25% by 2035.

Priorities for implementation

More efficient buildings require less energy in the first place. Insulation, smart controls and efficient appliances can reduce consumption, while electric technologies such as heat pumps can increasingly replace fossil fuels for space and water heating.

Buildings can also evolve from passive consumers into active participants in a more flexible integrated energy system. Combining rooftop solar, batteries, EVs and smart charging can help manage peak energy demand[6] and support a more resilient grid.

From an energy transition perspective, the most pressing challenges in the built environment are how to retrofit and electrify existing buildings. The main barrier is not a technological one – it's the mismatch between the upfront cost of retrofits and the long-term economic benefit. The costs are borne by the building or homeowner but it's not clear who enjoys the benefits and over what timeframe.

Bankability

In the retail sector, research[7] shows us that most customers in Europe want to play a positive part in the transition to a more sustainable future. Yet progress remains far below what's needed because of two factors: navigating the complexity and difficulty of the 'upgrade ecosystem', and the upfront investment required coupled with economic rewards that may only fully materialise after a homeowner has decided to move on.

Through our mortgage portfolio we finance the homes of millions of people, and we've learnt that the banking sector needs to find new ways to help and incentivise homeowners to invest in the measures that will protect - or even enhance - their property value while reducing their emissions. In our view a combination of mortgage-linked financing, end-to-end retrofit solutions, and coordination with municipal heating plans are the essential enablers and offer a way forward. However those tools are designed to meet rather than create demand.

6. IEA: The Value of Demand Flexibility (2025)

7. Eurobarometer: Citizen support for climate action (2025)



The role of the ecosystem

Accelerating the retrofit and electrification of residential and commercial buildings offers significant potential to reduce emissions and improve energy efficiency. Finance is already available for many building upgrades, but scaling investment requires an ecosystem that makes more projects practical, attractive and bankable.

Governments can support retrofits and redevelopment by providing clear long-term renovation pathways, predictable building standards and targeted incentives. ING-commissioned research[8] with Guidehouse confirms that many residential renovation measures already make economic sense, yet uptake among homeowners remains relatively limited. Grants, guarantees and blended-finance structures can particularly support lower-income households, expanding the pool of homes able to invest. For commercial real estate, stable policy, clear regulatory signals and measures that improve retrofit economics can strengthen business cases, helping attract greater flows of public and private capital into the sector.

Local and regional authorities can translate national ambitions into practical delivery through streamlined permitting, neighbourhood renovation schemes, one-stop-shop advisory services and coordinated local planning. Aggregating projects can also create larger, more standardised investment opportunities that are easier to finance at scale.

Collaboration within ecosystems will be a key driver to progress:

Valuers, investors, data providers and industry bodies can help develop methodologies[9] that better recognise the long-term value of energy efficiency, climate resilience and reduced transition risk in valuation and financial frameworks. Doing so can strengthen the financial rationale for retrofit projects and support more informed lending and investment decisions.

Energy regulators, grid operators, utilities and system planners can enable electrification through sufficient grid capacity, timely connections and tariff structures that encourage efficient electricity use. Investment in grids, storage, flexibility solutions and smart technologies can improve project viability, reduce delivery risks and make electrification projects more attractive for owners and financiers.



Manufacturers, contractors, installers and engineering advisers can contribute by expanding workforce capacity, standardising solutions and providing reliable performance data. Investment-grade assessments, transparent warranties and proven performance outcomes can help reduce technology and execution risks for owners and financiers.

Building owners, housing associations, asset managers, institutional investors, insurers and market intermediaries can develop long-term transition plans, aggregate projects, and coordinate procurement. This can build a stronger pipeline of investable projects, increase market confidence and enable banks to finance more of the transition to sustainable buildings.

Banks, investors, real estate organisations, technology providers and policymakers can collaborate to improve the quality, consistency and transparency of building-performance data. This strengthens risk assessments and reduces transaction costs. Banks should continue to work on optimising renovation loans and information/orientation platforms to address identified customer barriers, while engaging with governments on blended finance approaches that reduce lending costs.

Ultimately, financing and implementation reinforce each other. Coordinated action can help turn more retrofit and electrification opportunities into bankable projects, allowing capital to support the transition at greater scale. For banks like ING, the opportunity is both to finance those projects and to use their experience and stakeholder relationships to help connect the conditions that make them investable.

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8. ING: "Driving sustainable renovations starts with understanding homeowners"

9. as an example, the Royal Institution of Chartered Surveyors (RICS) 'ESG and sustainability in commercial property valuation' (4th edition, 2026)

In addition to assisting homeowners, we're supporting large and smaller commercial real estate clients to retrofit and redevelop commercial buildings into top-tier energy-efficient properties. And we finance the manufacture of electrification technologies such as solar panels, heat-pumps and batteries – as well as the companies installing such technologies in homes and buildings.

Daikin: scaling the production capacity of heat-pumps for electrification

In 2024, in support of **Daikin Europe**'s goal to expand their production of residential heat-pump heating systems to meet the growing demand for sustainable heating solutions across Europe, ING provided a Green Loan to help finance new EU-based manufacturing capacity. The new production base, inaugurated in May 2026, enables local production of heat-pumps and supports Europe's transition away from fossil-fuel-based heating, contributing to CO_2 emission reductions and greater energy efficiency, while strengthening supply chain resilience.

ING Upgrader: easier end-to-end electrification for homeowners

Green mortgages alone are not enough to incentivise homeowners to retrofit their homes. ING is therefore also supporting homeowners across Europe and Australia with loans and planning support platforms that help customers who are installing solar panels, electric heat-pumps, home batteries, and home-charging stations.

In the Netherlands, **ING Upgrader** was launched in December 2024 as a new approach to helping homeowners make their homes more efficient. Together with the **ING Upgrade Check**, it provides an integrated route from an initial digital assessment and tailored energy-saving advice through subsidy support, access to financing options and renovation installation. This approach supports customers to improve the energy label of their home. This is complemented by ING's energy-label-based mortgage pricing, which provides an additional financial incentive for improving the energy performance of the home. By making the renovation journey easier to navigate and strengthening the financial case for action, the approach offers a potential way forward in addressing some of the barriers holding back residential retrofits.

Commercial RE: connecting building performance with investment value

Green and sustainability-linked loans provide a direct financial incentive for commercial real estate players to invest in improving the energy performance of their assets. Covering the cost of retrofitting, these loans, such as ING's **Sustainable Loan** for Dutch commercial real estate clients, can enable owners to access an interest discount when an asset is improved to the highest-rated energy label.

Access to real-time data can further incentivise uptake, which is why ING offers the **REF Sustainable App**, which helps commercial clients assess measures, costs, payback periods and projected savings in euros and CO_2.

Our approach is reflected in the bank's financing of **Global Holdings' Xylo**, the redevelopment of 155 Clerkenwell Road in the heart of London. ING is providing a green loan that supports the conversion of the site into the UK's largest full-timber-frame workplace and net-zero building. Xylo is designed to achieve an 'A' energy performance certificate (EPC), LETI Pioneer, NABERS UK 5.5-star and BREEAM 'Excellent' certifications – taken together they represent a deep focus on building one of the most advanced environmentally sensitive buildings in the world.



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Steel

A soon-to-electrify sector?



Decarbonising steel is one of the energy transition's most complex challenges. Yet steel will remain indispensable in a low-carbon economy, as it's a critical component in everything from wind turbines and electricity grids, to buildings and appliances, to railways and electric vehicles. As the OECD[10] points out, the challenges for 'green' steel are complex and interlinked, ranging from technological scaling-up, the barriers to exit of existing emissions-intensive plants, and the securing of resources, investment, and market offtakers prepared to pay a premium price to decarbonise their own supply chains.

Priorities for implementation

Steelmaking is a two-step process. First, iron ore is reduced to iron (by removing oxygen through combustion). Next, the iron is refined into steel by mixing it with scrap metal and alloys. Currently, the first step is mainly done using coking coal in a blast furnace, where the carbon from the coal combines with the oxygen being removed from the iron ore, creating CO_2 emissions. The second step can be completed in either a Basic-Oxygen-Furnace (BOF) or an electric arc furnace (EAF) – which is fully electric and already widely used in the industry. When EAFs are powered using clean electricity, the main decarbonisation challenge for steel is how to defossilise the first step: iron-ore reduction.

Fortunately, the technology is already available: direct reduced iron (DRI) plants use natural gas instead of coking coal, significantly reducing the CO_2 emissions associated with ironmaking. When natural gas is replaced by green hydrogen, which itself is manufactured using clean electricity, GHG emissions are almost fully eliminated.

Bankability

While electrification offers technically-viable near-zero-emissions primary steel, bankable projects remain scarce. This scarcity isn't a failure of ambition, analysis or technological solutions, but a systemic problem. For a green steel or lower-carbon project to be considered for private finance, multiple conditions must align at the same time:

- the steel producer or a new player must be willing to invest in retrofitting or building new capacity, which is a multi-billion euro, multi-year commitment in a cyclical commodity business dealing with overcapacity and stiff competition.
- that producer must secure long-term offtake contracts (unusual in the steel industry) with customers willing to commit to offtake this new product for which a premium may have to be charged to make the business case work.
- green hydrogen (or natural gas supply) must be available at the project location at predictable and competitive prices.
- reliable low-cost clean electricity must be available at industrial scale, not just contracted, but deliverable through a grid that can handle the enormous baseload demand of the mill without destabilising regional power quality.
- all involved parties – producer, offtakers, hydrogen supplier, grid operator – must commit to interdependent long-term contracts, each betting that the others will perform.

An additional challenge is one of location: many steel plants were built near historical coal and iron ore resources, rather than in locations with the abundant and affordable clean energy needed for low-carbon steelmaking. As a result, the most economic pathway may involve shifting iron production to regions with cheap renewable power, natural gas, or high-grade ore, while continuing steelmaking closer to end markets, creating trade-offs between cost, energy availability, industrial policy, supply-chain security and the social (employment) considerations of a just transition.

The complexity of these interdependencies illustrates the challenges of real-world implementation, and flowing from that, the difficulty of making green steel bankable.

10. OECD: Addressing steel decarbonisation challenges for industry and policy (2024)

Financing the system

Despite the systemic constraints, there are projects at various stages of maturity that work towards decarbonisation, either domestically or through value-chain partnerships. ING has supported several such steel decarbonisation projects in Europe and is currently working on several others.

Our experience shows us that steel decarbonisation projects are not as advanced nor as numerous as we had previously envisaged. While the technologies are there, the key constraint is how to connect the system around the solutions and make implementation and subsequent scale-up economically viable.

As banks we have a vital role in helping accelerate the transition by also advocating for the system conditions that create successful industrial projects:

- carbon contracts-for-difference to derisk revenue streams
- coordinated industrial cluster development to aggregate hydrogen demand
- grid reinforcement and expansion plans synchronised with industrial investment timelines
- long-term offtake mechanisms that distribute risk across value chains
- predictable or locked-in regulatory environment

Until these enablers exist, our impact will be limited to how much capital we deploy. The challenge of the steel sector powerfully illustrates how it is not possible to deliver progress by only financing discreet projects, and the priority of aligning the ecosystem in order to enable capital to flow for electrification of the hard to abate industries. Increasingly the banking sector needs to take a view of the challenge systemically and innovate solutions that seek to join the dots.



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