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The bank for a changing world

PERSPECTIVES

Experts' views on the green and social transition

Trimestrial - issue 12 - January - 2025 | *energy efficiency*

Energy efficiency as a crucial aspect of the transition

by **Tanguy de Bienassis**,
Energy Investment and
Finance Analyst, International
Energy Agency



Public authorities and banks should strongly encourage a more efficient use of available electricity resources.

Energy efficiency is a concept focused on three axes: the electrification of processes using fossil fuels, the adoption of more efficient new technologies, and the adoption of a form of energy sobriety among consumers. Its role in the scenarios published by the International Energy Agency (IEA) is absolutely crucial in several aspects.

Increasing energy efficiency aims to meet growing needs with a stable and increasingly decarbonised energy supply, which is beneficial for a country's finances and its inhabitants. It helps smooth demand peaks, reducing the necessary investments in networks and strengthening supply security, especially as renewable energies soar. Lastly, it reduces the demand for oil and gas and is therefore at the heart of

our scenarios aiming to achieve carbon neutrality. The role of energy efficiency is vitally important in industrialised nations, which are the largest energy consumers, with buildings, transport and industry as the main sources of inefficiency. Despite the objectives announced at COP28, we have unfortunately observed a slowdown in energy efficiency improvements in the last two years. While global sales of electric vehicles continue to progress, the buildings renovation rate remains disappointing. Industry is another black spot – equipment and renovation expenses can be significant, and companies are navigating a difficult context in which they compete with businesses that are not subject to the same regulatory constraints.

Our conclusions point to an increased and urgent need for investments, with joint efforts from public authorities and the banking sector. Energy efficiency often stems from personal choices, but a simple and stable regulatory and financial infrastructure is necessary to support this crucial aspect of the transition.

TOWARDS A BETTER USE OF ENERGY

The central role of energy efficiency in the climate transition has been affirmed by the COPs, especially the one in Dubai, where signatory countries committed to double the annual rate of energy efficiency by 2030.

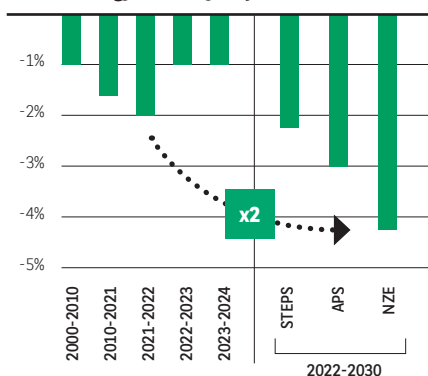
This ambitious goal requires everyone's involvement – businesses, individuals and public authorities. Companies must innovate and better manage their production processes, individuals can act through their consumption choices, and public authorities must define and adopt relevant standards. Financial institutions, for their part, can contribute to boost the number of energy efficiency initiatives by channelling investments towards innovative initiatives. The road to achieving the COP28 objectives remains long, but several initiatives are already underway, often generating social co-benefits. In real estate, for example, the implementation of regulations promoting energy renovation and the most advanced insulation standards creates jobs and enhances comfort. Promising examples can be found in many other sectors.

Nathalie Jaubert, Deputy
Head of CSR, BNP Paribas

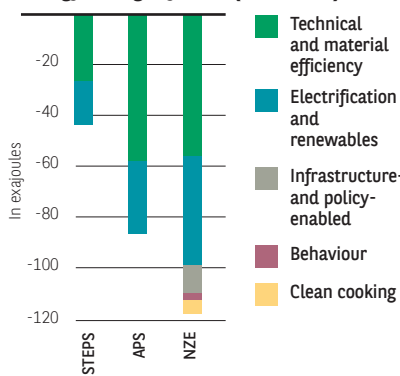


The slowdown in energy efficiency improvements challenges the COP28 target

Annual energy intensity improvements



Energy savings by lever (2023-2030)



STEPS: Stated Policies Scenario
APS: Announced Pledges Scenario
NZE: Net Zero Emissions by 2050 scenario

Source: World Energy Outlook 2024, IEA

- 1 Measured by primary energy demand per unit of GDP, energy efficiency is a key transition indicator. Despite constant progress since 2000 due to technological innovations and economic transformations, the pace has significantly slowed.
- 2 At COP28, nearly 200 countries, committed to doubling annual energy efficiency improvements from 2% to 4%. However, global energy efficiency progress has slowed, falling below the 2030 target based on the stated policies scenario (STEPS) and Announced Pledge Scenario (APS).
- 3 To accelerate, it will be necessary to focus on the two most significant levers in the medium term: technical efficiency (building retrofits, vehicle fuel economy advances) and switching to electrification and renewable energies.

What's at stake

Closing the investment gap

Current energy efficiency investments are insufficient for a net-zero scenario. Coordinated public and private efforts to boost electrification and insulation can help bridge the gap.

Tackling the energy efficiency challenge

by **Thibaud Clisson**,
Climate Change Lead,
BNP Paribas Asset Management



Energy efficiency is key to the global transition strategies. However, current progress is lagging behind the goals fixed at COP28. Financial, structural and behavioural barriers are hindering the adoption of effective measures.

Electrification of uses is the main lever to improve energy efficiency, whether it is heat pumps in buildings, electric vehicles, or industry (glass, food, steel, etc.). Improving the insulation of buildings also has great potential.

Statistically speaking, investments in energy efficiency have grown by **50% since 2019**, but they remain largely supported by citizens

and SMEs. However, many are not keen to make these investments because they are unsure about the return on investment or they think this will be far in the future. The 'rebound effect' is also hampering progress, as efficiency gains are often cancelled by a rise in consumption. In 2024, energy efficiency gains were no higher than 1%, yet **primary energy demand increased by 2% according to the International Energy Agency (IEA)**.

There is also a geographical challenge: developed economies and China account for 90% of investments. But the potential in Africa and the Middle East is still largely untapped, due to major structural and financial barriers.

In the developed economies, initiatives like the **RePowerEU** plan and the Inflation Reduction Act in the United States are taking us down the right road, but they are

not enough, especially in the light of resistance to change. Financial solutions that are adapted and strengthened – tax credits, reduced interest loans and targeted subsidies – are therefore still crucial. Stricter regulations could also accelerate progress. One could highlight, for instance, the delays in ending the sale of thermal cars in Europe, the absence of energy standards for half of the buildings constructed worldwide in 2024, or the fact that barely 60% of industrial motors are covered by energy performance standards.

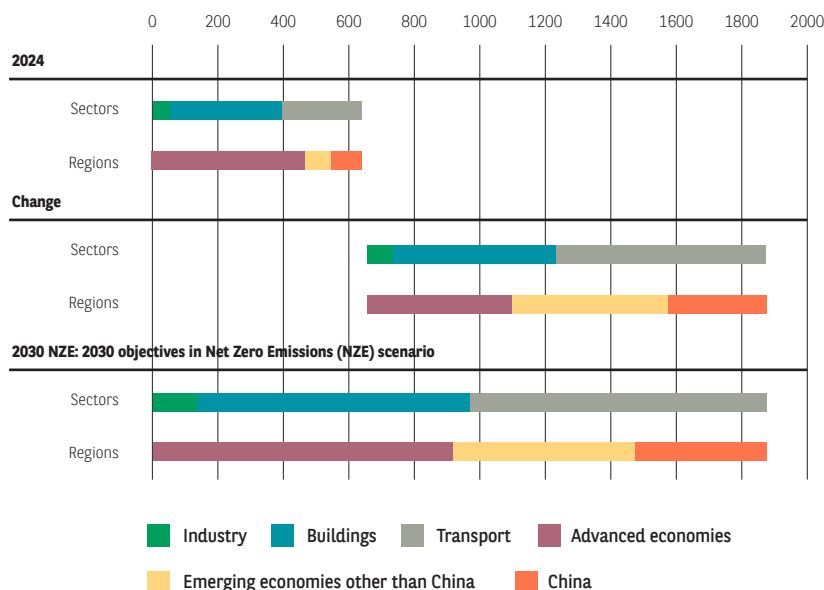
Lastly, training a skilled workforce is essential to remove bottlenecks in project implementation and to stimulate innovation.

These challenges underline the importance of coordinated deployment of public policies, private players and civil society to transform ambitions into practical results.

Investment gap in Energy Efficiency

To achieve carbon neutrality by 2050, global investments in the energy efficiency of buildings, transport and industry must triple to USD 1.9 trillion per year by 2030, according to the IEA. This could lead to a massive deployment of energy-saving technologies in addition to the replacement of obsolete and inefficient equipment. Special attention should be paid to emerging countries (other than China): although their energy needs have grown rapidly, they currently represent less than 10% of investments in energy efficiency.

Annual investments (\$ billion 2023)



Source: International Energy Agency (IEA) World Energy Investment 2024 report

SCAN OR CLICK ON THIS QR CODE
TO SEE THE IEA'S OVERVIEW OF
THE CURRENT STATE OF GLOBAL
ENERGY FINANCING



Beyond a climate and regulatory requirement

European directives have positioned energy efficiency at the core of the energy transition. It is key for climate but also for energy autonomy.

EU needs energy efficiency progress to achieve climate neutrality

by Wilfried Remans,
Senior Manager European
Public Affairs, BNP Paribas



Ursula von der Leyen, the President of the new European Commission, integrated the implementation of the EU Green Deal in the mission letters of all 26 commissioners, linked to the new priorities of competitiveness and strategic independence.

During the previous mandate, energy efficiency was already high on the radar as part of the Fit for 55 package, which aims to reduce GHG emissions with 55% by 2030. The topic skyrocketed during the energy crisis following the war in Ukraine: Everyone understood that being able to use less energy is not only a question of climate, but also a matter of personal finance and strategic autonomy.

The new Commission proposes a 90% greenhouse gas emission reduction target for 2040, which will make a continued rollout

of energy efficiency measures essential. You will find it in the assignment of the Commissioner for Energy and Housing, who, amongst other things, has been tasked with 'further implement[ing] the energy efficiency first principle'.

The [EU Energy Efficiency Directive](#) needs to be integrated in member states' national legislation by October 2025. Its preamble describes how energy efficiency should be considered as the first option in policy, planning and investment decisions: 'Energy efficiency improvements need to be made whenever they are more cost-effective than equivalent supply side solutions.'

The directive increases the energy efficiency targets for 2030, adds measures to deal with energy poverty and expands obligations for SMEs, industry and data centers.

"EU NATIONS ARE EXPECTED TO SET THE EXAMPLE BY TARGETING THE FINAL ENERGY CONSUMPTION OF ALL PUBLIC BUILDINGS."

As the public sector is responsible for 5 to 10% of the EU's total final energy consumption, EU nations – which spend almost €2 trillion on total procurement annually – are expected to set the example by targeting the final energy consumption of

all public buildings.

Energy efficiency can be found in [other recent regulatory initiatives](#), such as the Energy Performance of Buildings Directive and the Ecodesign for Sustainable Products Regulation. At the end of 2024, the Commission also launched the [European Energy Efficiency Financing Coalition](#), bringing together EU countries, financial institutions (e.g. BNP Paribas Polska) and relevant stakeholders, to identify actions to concretely improve private financing for energy efficiency.

Energy efficiency in the CSRD's sights

by Louis Chenat,
Head of Extra-financial
Communication, BNP Paribas



The requirement for regulatory transparency aims to direct capital flows to the most ethical stakeholders.

The [Corporate Sustainability Reporting Directive](#) (CSRD) requires large European companies to publish numerous extra-financial data about their sustainability practices, in a standardised format starting in 2025. This regulatory framework will allow for better comparison of the achievements of large companies, particularly in terms of energy efficiency, through the publication of

detailed data on greenhouse gas emissions, including at the value chain level and in relation to their turnover.

This new legislation has a far broader impact than it might seem. On one hand, it does not only concern large companies since they must request detailed information on the emissions of their subcontractors. Therefore, the entire value chain is covered. On the other hand, the quality of data provided by the companies will gradually improve, thanks to the spreading of this practice and regular requests for information.

The main goal of this transparency initiative is to promote more virtuous environmental practices. Customers, suppliers and

financial institutions will have access to extensive and comparable environmental data, allowing them to direct their purchases or loans towards the most efficient companies. By facilitating comparison and encouraging exemplary practices, this regulation aims to reduce the flow of purchases and capital towards the least efficient companies or those very greedy in fossil energies.

However, the regulation alone cannot replace government incentives. In terms of energy savings, energy renovation works require increased support from public authorities, regulatory simplification, and an acceleration of supply to reduce the cost of the works.

Industries in depth

What it takes to embrace efficiency

From biofuels to nuclear reactors, the transition to an energy system that is more efficient and less consuming will rely on a range of solutions to suit each use case.

Biofuels is an efficient solution for the energy transition

by Raphaël Loiseleur,
Vice President – Low-Carbon
Transition Group EMEA,
BNP Paribas CIB



Derived from organic materials such as plant biomass and waste fats, biofuels play a critical role in the low-carbon transition of transportation. They also boost energy efficiency and security of supply.

First-generation biofuels were criticised because they had a negative impact on food security. This led to the development of second-generation biofuels, which improve energy efficiency, making good use of non-food waste and sustainable raw materials. In addition, they offer a low-carbon alternative to fossil fuels and are compatible with today's vehicle fleets. As numerous fossil fuel refineries convert into biorefineries, the sector's industrialisation and profitability are safeguarded.

Yet the sector still faces challenges such as fraud, mislabelling and cheaper imports. The EU has responded by introducing anti-dumping tariffs and has requested stricter certification standards.

Thanks to their excellent cost/decarbonisation impact ratio, biofuels are crucial for meeting the EU's sustainable aviation fuels mandates. Biofuels are also an essential part of the energy transition, while fostering energy security.

Shedding light on the energy efficiency of green hydrogen

by Alexandre Henneguelle,
Hydrogen & Carbon Capture Expert,
BNP Paribas



Produced from water and renewable power, "green hydrogen" allows to decarbonise the existing use of hydrogen as a feedstock in refineries, chemical production plants and steelworks.

Considering its low carbon footprint, green hydrogen is also viewed as a potential **energy carrier**. As such, green hydrogen

competes with other energy carriers across various factors including energy efficiency. The energy efficiency of using green hydrogen as an energy carrier can vary greatly from one application to the other due to specific factors linked to production (such as availability of high temperature steam), transportation and storage (requiring either compression, liquefaction or conversion into other energy carriers) and use (with fuel cells, gas turbines or gas boilers). In general, the efficiency from production to end use currently varies between around 20% to 50%.

The use of green hydrogen raises questions in sectors where direct electrification alternatives are available, notably residential heating (heat pumps are at least five times more energy efficient than hydrogen boilers) and automotive (battery electric solutions are at least three times more energy efficient than fuel cell solutions). Green hydrogen prospects consequently seem more promising in long-distance aviation and shipping industries (not well suited to direct electrification), via conversion to e-fuels.

SMRs enable better use of energy resources and co-generation

by Mark Muldowney,
Managing Director, Low Carbon
Transition Group, BNP Paribas



Nuclear power has long been valued for its ability to provide reliable, low-carbon base load energy. Unlike solar or wind energy, nuclear energy ensures consistent power output throughout the year. As electricity demand peaks in many markets during winter afternoons and evenings, nuclear power remains a stable backbone for modern grids.

The rise of small modular reactors (SMRs) is a promising development. They potentially offer faster, more cost-effective alternatives to traditional large-scale plants. With a prospective lifespan of 60 to 80 years, these reactors are designed for efficiency, flexibility and adaptability. Their modular construction should allow for shorter build times and improved quality control. They range in size from less than 1 MW to 470 MW and utilise a variety of different technological approaches. While still in early stages, over 70 small modular reactor projects are under development

across 18 countries globally, with anticipated deployment in the 2030s.

These smaller-sized reactors hold potential for applications beyond electricity. They could support district heating, hydrogen and low-carbon fuel production. They can also be used for remote installations like mines and research bases. As climate challenges intensify, small modular reactors are poised to become an important element of global energy strategies, blending efficiency with environmental responsibility.

Transforming electric vehicles into energy assets

by Oana Duma,
Head of Arval Mobility
Observatory



Sales of electric vehicles (EVs) have shifted into top gear, rising globally by \uparrow 25% in 2024. But today's power systems, including charging infrastructure and grid stability, will struggle to keep pace with this rapid increase in EV adoption. Potential new solutions include smart charging to boost energy efficiency and making wider use of the electricity stored in EV batteries later this decade.

In Europe, \uparrow electric vehicles are expected to use up to 14.5% of electricity consumption by 2030, compared to 1.1% in 2023. EU legislation is driving this growth, notably the goal of net-zero greenhouse gas emissions by 2050.

Electricity grids need a helping hand from new technology, if they are to charge all these EVs. By enhancing energy efficiency, smart charging already plays a major role. This key technology optimises the time/speed of EV charging based on electricity prices (day/night tariffs), grid demand and user needs. By reducing operational costs and boosting grid flexibility and stability, smart charging helps the grids and EV drivers.

Vehicle-to-grid, or bidirectional, charging enables EVs to return excess energy to a grid during peak demand periods. EV batteries thus become an active part of power systems. Despite technical challenges, such as a lack of interoperability standards for bidirectional charging, vehicle-to-grid (V2G) trials conducted in Europe have proved positive. For example, the \uparrow V2X Suisse project demonstrated that one EV can feed up to 20 kilowatts of power back into the grid. V2G can reduce costs for EV fleet operators and generate revenue opportunities for users selling surplus energy back to the grid.

Vehicle-to-everything (V2X) extends vehicle-to-grid technology, connecting EVs to the grid as well as directly powering homes, businesses and other infrastructure. This emerging technology can be harnessed in off-grid sites and during emergencies, while reducing dependency on the grid during peak hours.

All three of these EV charging technologies optimise charging patterns and foster energy sharing. In this way, they contribute to more efficient use of energy resources, to the benefit of grids – by decreasing the load on grid capacity in peak hours for instance – and EVs' carbon footprints.

Forging an energy-efficient future for steelmaking

by Rodrigo Lencina,
Industry and Sector Expert –
Steel and Metals Transformation,
BNP Paribas



As one of the most energy-intensive industries globally, the steel sector faces urgent challenges and transformative opportunities in energy efficiency and decarbonisation.

For decades, steelmakers have focused on improving energy efficiency to reduce costs and environmental impact – a win-win for the industry. Since 1960, energy intensity in steel production has fallen by 60%, reflecting continuous efforts to minimise waste and optimise processes. Yet energy use is the second-largest cost in steel production after raw materials, with significant implications for greenhouse gas emissions. As modern blast furnaces near practical energy-use minimums, the industry must realise new strategies and innovations to decarbonise.

Existing plants strive for incremental improvements in energy efficiency, such as optimising motor systems and heat recovery. AI-driven process controls and predictive maintenance are re-shaping efficiency strategies, while greenfield projects signal transformative potential.

Energy efficiency also aligns with decarbonisation goals, but deeper CO₂ reductions require breakthroughs. Low-carbon hydrogen and electrification of steelmaking offer longer-term promise, albeit with high costs and infrastructure challenges. The circular economy also plays a critical role, with electric arc furnaces fed by scrap consuming 58% less energy to produce a ton of steel than traditional blast furnaces. However, scrap availability remains a constraint, underscoring the need for more efficient primary iron ore reduction methods.

Global sustainability goals, such as those in the Paris Agreement, are pushing steelmakers to invest in energy-efficient practices – though local regulations can vary around the world – and carbon taxes are another driver for decarbonisation. Collaboration across stakeholders – producers, governments, suppliers and academia – is essential to accelerate progress.

Energy efficiency remains a vital, ongoing effort in steel production, with a dual focus on competitiveness and environmental targets, while the path to full decarbonisation demands both incremental improvements and bold innovations. As steel underpins key sectors like construction and renewables, energy efficiency is central to the industry's evolution and to building a sustainable future.

Innovation watch

Combining energy sobriety and innovation

New technologies are a powerful lever for efficiency, whether reducing their energy footprints or delivering innovative solutions.

Heating Stockholm with our data centres

by Alexis Carrion,
Global Head of Data Centres,
BNP Paribas CIB



Data centres are key to our digital societies. They ensure the availability, security and reliability of many services. Their operation consumes significant energy, although this can be optimised.

Data centres are becoming bigger and more powerful, driven by the digitalisation of services and the development of artificial intelligence. However, because both use a great deal of energy, the International Energy Agency estimates that electricity consumption could **double between 2022 and 2026**. Much of this consumption generates heat, which must be removed to ensure the servers can continue to operate optimally. Usually, this cooling is handled by a ventilation system, which expels the hot air. The heat produced by computer equipment is therefore lost.

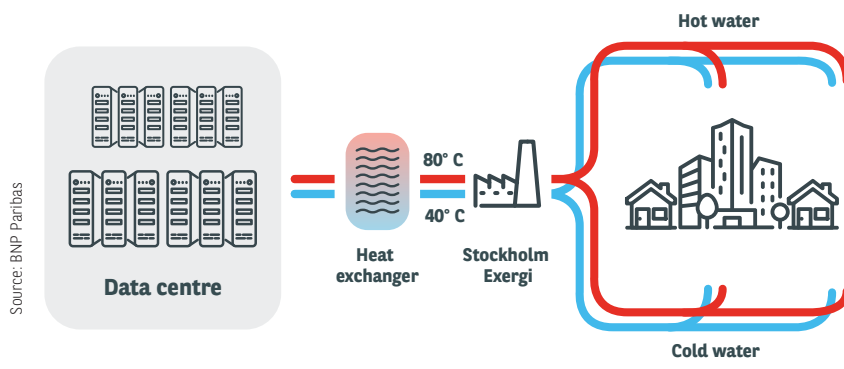
New-generation data centres can reduce this kind of energy loss. In a new **high-performance data centre in Stockholm**, the heat produced by BNP Paribas servers is captured, thanks to a technical solution implemented in partnership with **atNorth**, Dell Technologies and **Stockholm Exergi**.

The system allows the capture of up to 85% of the heat produced in the data centre. This heat can then be passed on to a district heating system serving 20,000 homes. BNP Paribas has therefore set up direct liquid cooling, which is more energy efficient than conventional air-cooling. State-of-the-art microprocessors have also greatly improved the energy efficiency of servers, which means the environmental impact of server operation has been significantly reduced.

The challenge now is to roll out this new generation of data centres, which will improve performance while reducing energy consumption.

How the heat recycling system works

Direct liquid cooling removes the heat released by the servers via a hot-water loop. This heat can then, for example, be used to supply a district heating network; this is already the case in BNP Paribas' data centre in Stockholm. Generally speaking, a system like this will enhance a data centre's overall operating efficiency by at least 30%, compared with conventional air cooling.



FOR MORE DETAILS ON BNP PARIBAS' NEW-GENERATION DATA CENTRE IN STOCKHOLM, SCAN OR CLICK ON THE QR CODE



Leveraging high-tech to support energy-efficient housing

by Vincent Boclé,
CRO, namR



By 2050, over half of our homes could be made uninhabitable by climate-related heatwaves, drought and floods. One French company is tackling this formidable challenge, thanks to sophisticated software and data analysis.

Launched in 2017, **namR** uses AI and data science to analyse and enrich geo-spatial and building data. Armed with terabytes of building-specific data, from open data sources and from public and private partners, the company can provide targeted recommendations for energy efficiency and renovation strategies in today's housing stock.

Such recommendations also enable climate adaptation of buildings. This will be a key priority in France, for example, where six out of 10 residential buildings could be adversely affected by climate change.

Namr's technologies are deployed through personalised digital platforms and APIs (software interface). These solutions assist home owners and financial advisors in understanding how best to facilitate the ecological transition of homes and real estate assets. They also ensure the energy efficiency and durability of building-related investments.

The simulator *ecoclik* – currently used by La Banque Postale – can for instance suggest implementing insulation upgrades, installing new HVAC systems and replacing windows, with every proposed measure tailored to specific building needs. In a partnership with namR, BNPP is piloting Home Retrofit Simulator in Spain and Italy.

Our clients commit

Energy efficiency in practice

Public awareness and coordination are vital when implementing energy efficiency solutions.

Promoting energy efficiency in Poland

by Adam Hirny,
Director Sustainable Business
Development Department,
BNP Paribas Bank Polska



The Polish Residential Energy Efficiency Financing Facility (PolREFF) has played a pivotal role in fostering energy transformation within Poland's residential sector.

Launched with the European Bank for Reconstruction and Development (EBRD), [the programme](#) has provided financing for green projects aimed at improving energy efficiency and promoting renewable energy in residential buildings. So far, 675 million zloty (€158 million) has been issued in loans, enabling 30,000 energy-efficient investments.

The environmental impact has been remarkable, with PolREFF helping to avoid 515 GJ per year in primary energy consumption, producing 3,715 MWh per year in renewables, and

reductions in key pollutants, including 35 million kg of GHG emissions annually. While homeowners have directly benefited from the loans, the programme has also stimulated demand for green technologies, benefiting producers and installers of heat pumps, photovoltaics and other items. The EBRD's role has been crucial, providing a credit line and technical assistance, and supporting the transfer of knowledge. Despite challenges in training staff on energy efficiency, the programme succeeded in engaging bank employees and clients in sustainability discussions.

Though PolREFF did not offer direct financial incentives, participants could access public grants and subsidies. The programme's impact demonstrates that financial institutions can effectively drive energy efficiency and sustainability by leveraging EU support and offering clients tailored financial solutions. And PolREFF's legacy continues through an ongoing commitment to sustainable investments.

Battery energy storage systems offer glimpse into Australia's renewable future

by Chris Ruffa,
Head of Global Capital Markets Australia,
BNP Paribas



Australia's battery energy storage system (BESS) market is booming, with 7.8 GW of utility-scale battery energy storage projects under construction by the end of 2024, following significant growth in recent years. This surge comes as the country faces challenges integrating increasing renewable energy into the national electricity market. With an expected 9.5 GW of new storage capacity by 2033, this technological solution is crucial to balancing intermittent wind and solar power, stabilising the grid, and supporting the transition to net-zero emissions.

The battery energy storage system plays an essential role in smoothing the supply-demand imbalance caused by solar and wind, by reducing wasted curtailment of renewable energy and offering vital stored non-thermal back-up during peak demand periods, all together making the system more efficient. Australia's high penetration of rooftop solar amplifies the need for storage, as solar energy often peaks when demand is low. Battery energy storage projects help maintain grid stability and reliability, by responding almost instantaneously to deviations in frequency and voltage as more intermittent power sources come into the grid. This is a key focus in Australia given its expansive network, which was designed around baseload coal-fired power plants that supply around 50% of the nation's electricity and are set to retire by 2035. The compelling need for storage is increasing the financial viability of these systems and attracting corporate and institutional capital alike. While government support remains important, battery energy storage projects are becoming more economically sustainable, with diverse offtake models emerging to maximise returns as various stakeholders look to this energy storage technology to mitigate risk in the country's wholesale power market. The future for the battery energy storage system in Australia seems bright.

Building a sustainable future: transitioning assets in real estate

by Nehla Krip, Head of
Transformation, Innovation &
Sustainability, BNP Paribas Real
Estate Investment Management



Energy-efficient renovations in real estate are unlocking opportunities for sustainable growth, as demonstrated by Via Crespi, an office building in Milan.

Via Crespi showcases how strategic decarbonisation investments can align with the 1.5-degree climate pathway while driving financial and environmental value. With a total cost of €1.3 million – or €143 per square meter – Via Crespi's Climate Action Plan includes moderate yet effective measures

such as re-lamping and installing photovoltaic systems. These upgrades not only reduce CO₂ emissions – by 20% and 26% respectively – but also enhance tenant satisfaction through lower operating costs and improved building performance. Scaling these efforts across portfolios can entail solar panels, roof insulation, water-saving devices, HVAC replacements and tenant engagement programmes like green leases and eco-friendly training. These combined actions ensure a measured reduction in carbon emissions while creating resilient, high-performing assets that meet the rising demand for sustainable buildings. The payoff is clear: higher rents, longer leases and increased asset value for sustainable buildings..

Flashforward

Cooperating to promote energy efficiency

To finance the investments essential for energy efficiency, we need to involve all stakeholders.

Boosting the energy efficiency of SMEs

by **Robin Henri**, Programme Manager - Investments, Solar Impulse and
Yann Lagalaye, Head of Venture & Impact - Private Assets, BNP Paribas Asset Management



At COP29 in Baku, the European Investment Bank (EIB) Group, European Commission and Solar Impulse Foundation announced the launch of an initiative that seeks to support the decarbonisation of European SMEs by facilitating their access to energy efficiency solutions.

High initial costs, a lack of in-house resources and limited knowledge of best practices: SMEs keen to invest in energy efficiency must contend with many barriers. Yet these companies generate around 60% of Europe's GHG emissions*.

To tackle these challenges, the new initiative agreed at COP29 will harness **'servitisation' or energy efficiency as-a-service model**. This means that instead of buying energy-efficient heating or lighting

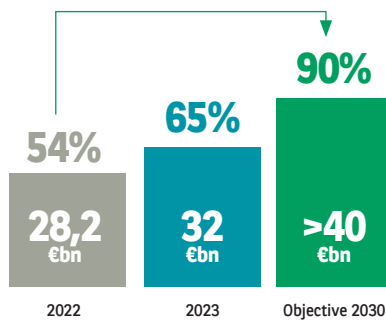
equipment, SMEs will only pay for the services they need. This model has enormous potential to boost the deployment of effective solutions, with high initial investment but a lower total ownership cost.

The Solar Impulse Foundation, which has certified over 1,600 clean technologies through its Solar Impulse Efficient Solution Label, will support the launch of pilot projects as part of this initiative. These projects will be used to assess the new concept, which could then be expanded, especially with the support of investment funds and platforms. The players behind this initiative also hope to strengthen SMEs' competitiveness with the project's innovative approach. The IEA believes that doubling energy efficiency gains would cut energy costs by a third by 2030. This new initiative builds on the efforts of the Solar Impulse Foundation, a partner of BNP Paribas since 2019. Together, they launched the BNP Paribas Solar Impulse Venture Fund in 2022, which is dedicated to accelerating start-ups focused on ecological transition.

*Annual report on European SMEs 2021/2022 – SMEs and environmental sustainability, Hope, K.(editor), Publications Office of the European Union, 2022

Overview of BNP Paribas' commitments to the energy transition

Financing low-carbon energy



Total financing (credit risk exposure) for low-carbon energy, mainly renewables. BNP Paribas' objective is for them to represent 80% of its financing for energy production by 2028 and 90% by 2030.

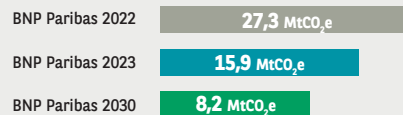
Percentage: share of the stock of energy financing dedicated to low-carbon

[CLICK HERE TO SEE BNP PARIBAS' NET-ZERO COMMITMENTS AND TRAJECTORY](#)



Oil & gas

Reduce the financed emissions for the oil and gas sector



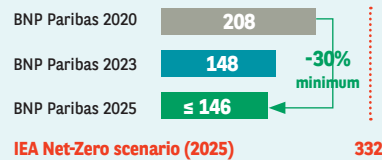
Reduce our absolute financed emissions for the oil and gas sector

-70%

in 2030 as compared to September 2022

Power generation

Reduce the emission intensity of our financing in grams of CO₂ per kilowatt hour



Within the energy mix we finance

increase the share of renewables

> 66%
by 2025

65% Achieved as of the end of 2023

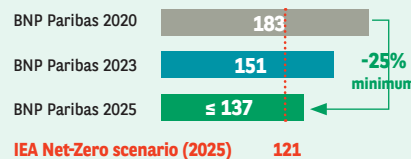
reduce the share of coal

< 5%
by 2025

5% Achieved as of the end of 2023

Automotive

Reduce the emission intensity of our financing in grams of CO₂ per kilometre (WLTP standard)



Increase the share of electrified vehicles within the automotive mix we finance

> 25%
by 2025

15%

Achieved as of the end of 2023

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