

Electric, together

The five fundamentals for faster progress
towards green energy security in 2023



IBERDROLA

Foreword

The past year has brought home to us all the critical importance of energy. All countries have had to deal simultaneously with the challenges of economic recovery following the pandemic and the threats to energy security unleashed by the invasion of Ukraine. Events have shown the need to change course and radically reshape how we produce and consume energy.

“We have a truly global vision for green energy security – building resilience and autonomy at the same time as reducing exposure to the crises caused by the world’s overdependence on fossil fuels.”

At Iberdrola, we have decades of experience in delivering the clean and secure energy model the world needs. From supporting vulnerable people to making the investments in hydroelectric plants, wind and solar farms and energy storage facilities that power economic growth. From modernising our electricity networks to connect more renewable energy and enable the electric vehicle revolution, to pioneering the commercial development of hydrogen power.

We have a truly global vision for green energy security – building resilience and autonomy at the same time as reducing exposure to the crises caused by the world’s overdependence on fossil fuels.

Thanks to our €47 billion investment plans for the three years to 2025, we’re committed to continuing to transform the energy system for the better in many states of the US, several countries in continental Europe, the UK, Latin America and Australia – affordably and at pace.

Just as all countries have been affected by the crisis, I believe that all countries can benefit from a green recovery. Net Zero should never be a zero-sum game. With the right approach to policy direction and investment, everyone can win in the race to green energy security.

If we are to learn one lesson from 2022, it is the compelling

need to work together to deliver electrification quickly for a more secure, clean and competitive energy system. The hard fact is that the world still relies on fossil fuels for close to 80% of its energy needs, exposing us all to unnecessarily high levels of disruption, inflation and pollution. Every day the world fails to act, its citizens and businesses remain trapped by international energy volatility and the window to tackle climate change closes.

2023 is the year to finally break the cycle of crises driven by oil and gas, and to shift the balance to delivering much, much more of our power needs through green electricity. By acting now, without delay, we can reset the energy market to wean us off fossil fuels, foster greater energy security and create the catalyst for hundreds of thousands of skilled jobs that will help drive economic recovery and reindustrialisation.

For Iberdrola, the answers are clear. A crisis caused by gas will only be solved by sustained investment and innovation in green generation, networks and energy storage. This report sets out our view on the five fundamentals of green energy security – what works, and what needs to happen next.

Ignacio Galán,
Executive Chairman



1. Doubling down on electricity networks

Delivering green energy security can't simply be willed into existence. To meet the goal of Net Zero, the amount of renewable generation that needs to be connected will increase five- or six-fold by 2040. And levels of electricity demand will also grow massively, as we move to cleaner forms of transport and heating.

Electricity networks provide the critical link between these new sources of green energy and helping local homes and businesses to decarbonise, and we're investing €27 billion over the next three years to make sure our networks are ready for Net Zero.

Grids are the backbone of the new energy model and the way forward for the transition to a green economy, enabling the integration of more renewables, sustainable mobility and smart cities.

Over a few short years, we forecast a rapid increase in the numbers of electric vehicles on our roads and in the deployment of electric heat pumps in homes and businesses. Combined with much greater distributed generation, local energy grids will need to accommodate and manage ever-increasing complexity in the future.

The grids we own and operate across the world today serve a population of 100 million people. From our already leading position, we're committed to digitalising more than 80% of our transmission and distribution networks by 2025, driving investment in innovation to make our grids as resilient as possible.

From new transmission power lines and cutting-edge subsea interconnectors to the substations and reinforcements needed to manage the connection of more renewables and increased electricity demand, we stand ready to deliver these major investments. They will need to be planned in a strategic way in order to send as clear a signal as possible to the supply chain and to manage the challenges of cost and resourcing pressures.

Speeding up the delivery of this infrastructure will create significant consumer, environmental, economic and system benefits. That's why our investments are guided by working in partnership with governments and regulatory authorities to ensure stability and predictability, as well as clear pathways to reform of planning and permitting processes to best deliver the scale of the changes required.

€27 billion

investment in electricity networks between now and 2025



The way forward

2023 is the year for decisiveness and ambition in unlocking the economic, social and environmental benefits of strategic networks investment.

Accelerating the planning process for grid infrastructure is of critical importance to keep pace with increased consenting of new energy infrastructure such as generation, storage and hydrogen sites.

Regulators need to be sufficiently agile and far-sighted to support significant amounts of 'no regrets' investment in the networks we all rely on, and which we will rely on even more in the coming years. With an asset life of 40 to 60 years, stable frameworks for planning network investment are essential.



The way forward

Spurred on by the post-pandemic recovery and the Ukraine crisis, 2023 should be the year for making meaningful progress to align the theory of countries' ambitious Net Zero targets with the specific regulations to deliver them.

We need to resolve the mismatch between stated climate and energy goals and the obstacles created by long and complex permitting procedures for the deployment of renewable projects.

Rather than overall renewables ambitions existing in a vacuum, the mechanisms to deliver them need to be embedded and prioritised in supportive policies, regulatory predictability and stable rules, better planning and more agile environmental permitting processes.

2. Turbo-charging the deployment of renewable generation

Building on our track record of more than 120 years of delivering hydro power, for the past two decades we have led the way on transforming the deployment of renewable energy. From hydroelectric, onshore wind and solar power to offshore wind generation, we have developed a portfolio of 40,000 MW of renewable operating capacity. Our focus on green energy generation means we have between three and four times lower emissions than the industry average and a world-beating track record in project execution.

This global leadership position gives us the confidence and the know-how to develop ever more ambitious and innovative projects. We have huge opportunities not just in the countries where we have operated traditionally, but also in new areas with enormous potential, such as Australia, Japan and Korea.

We are investing €17 billion in renewable generation between now and 2025 to reach a total capacity of 52,000 MW, with nearly half of these investments directed towards offshore wind projects. By 2030, our plans are targeting a near ten-fold increase in installed offshore wind capacity, alongside continuing strong growth in onshore wind and solar.

More than this, we are leading the development of the next generation of renewables – large-scale floating windfarms. As part of successful award of ScotWind projects for floating and fixed wind in the UK, for example, we are taking forward plans which would generate enough clean energy to power more than 8 million homes.

We are ready for the future with the biggest renewables pipeline in the industry. But as the current crisis shows, it's never been more important to remove barriers and pick up the pace.

Europe's REPowerEU plan is among the most ambitious in the world in sending a clear signal that we need to accelerate the energy transition – not only to achieve our climate goals, but to secure energy autonomy. And in other countries, like the United States and Australia, political leadership is bringing new momentum to the drive towards green energy security.

€17 billion

investment in renewable generation between now and 2025

3. Scaling up green hydrogen

With more than 60 renewable and green hydrogen projects in 8 countries around the world, we're spearheading the development of green hydrogen as a clean energy solution for those sectors of the economy that today are hard to decarbonise through electrification – like specific segments of the heavy industry and heavy transport sectors.

Produced using 100% renewable electricity, green electrolytic hydrogen is a zero emissions way of providing the fuel for energy-intensive applications that will prove invaluable in helping deliver Net Zero. Green hydrogen is the only truly sustainable type – and as it is developed on a commercial scale, its costs will be increasingly competitive compared to hydrogen produced from fossil fuels.

The primary point of hydrogen production should be to bring about more rapid carbon emissions reductions – zero should mean zero. Our aim of producing more than 350,000 tons of green hydrogen a year by 2030 would save hundreds of millions of tons of CO₂ per year compared to producing hydrogen from fossil fuels.

As a pioneer of renewables development 20 years ago, so too are we a first mover in this new technological challenge. We recently opened Europe's largest green hydrogen plant for industrial use in Puertollano, Spain, and we've just announced our commitment to invest in projects like the Bell Bays Powerfuels project in Tasmania, Australia, which is set to be one of the largest in the world.

We're at the forefront of this new phase of the renewables revolution, helping industry to reduce its polluting emissions by producing hydrogen close to centres of demand – cost-efficiently and emissions-free.

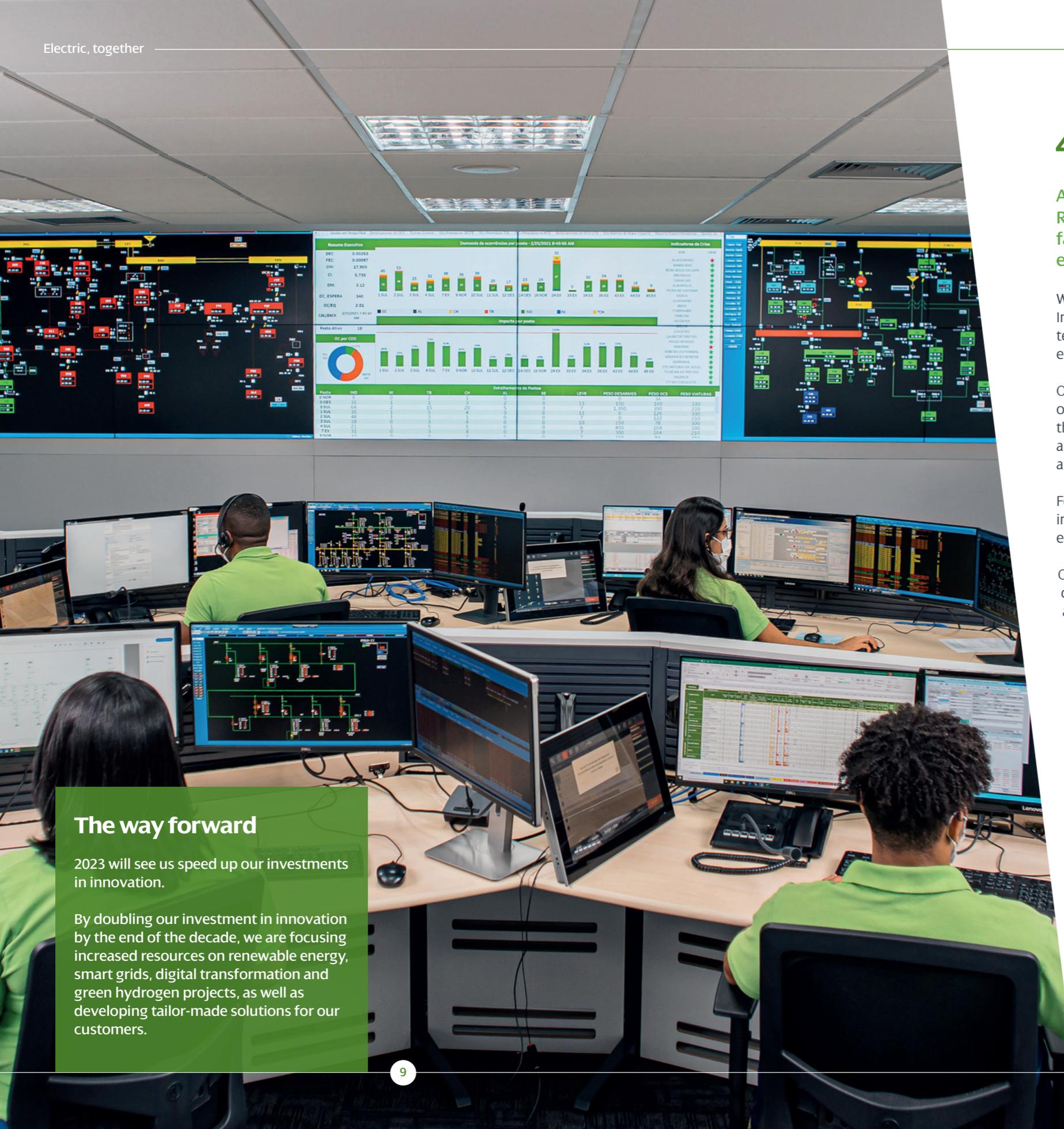
350,000 tons
of green hydrogen a year by 2030

The way forward

As governments around the world introduce mechanisms to support the development of hydrogen production, like the tax credits for qualified clean hydrogen included in the US Inflation Reduction Act of up to \$3 per kilogram of hydrogen from 2023, it's important that electrolytic hydrogen can compete on a level playing field.

Projects based on hydrogen produced from gas should fully reflect the risks of fossil fuel price volatility and the cost of emissions.





4. Spurring innovation

As the private energy company that invests the most in R&D worldwide, we're committed to going further and faster in delivering the innovation needed for green energy security.

With an innovation culture based on creativity, our state-of-the-art Innovation and Training Campus is the global centre for knowledge, technology and skills development, training nearly 13,000 people every year.

Our Global Smart Grids Innovation Hub is working with a wide range of universities, suppliers, technology centres and start-ups to develop the use of digitalisation and artificial intelligence in electricity networks and to facilitate the optimal deployment of renewables, electric vehicles and energy storage systems.

For the past 15 years, our Perseo start-up programme is driving innovation in climate-friendly solutions through a global ecosystem of early-stage investment in start-up technology companies.

Our aim is to accelerate the energy transition by addressing not only the climate crisis, but also by improving energy security, competitiveness and sustainable job creation throughout the value chain. Innovation also serves to reinforce our financial resilience as a company, helping us to mitigate the impacts of cost inflation and supply chain constraints.

One of the **world's leading utilities**

in R&D investment according to the EU Industrial R&D Investment Scoreboard

The way forward

2023 will see us speed up our investments in innovation.

By doubling our investment in innovation by the end of the decade, we are focusing increased resources on renewable energy, smart grids, digital transformation and green hydrogen projects, as well as developing tailor-made solutions for our customers.

5. Keeping our eyes on the prize of decarbonisation

The current crisis has reaffirmed the need to accelerate electrification with renewables, electricity grids and energy storage to achieve full decarbonisation and energy self-sufficiency.

As the energy company with the most ambitious decarbonisation plans in the world, our goal is to achieve emissions neutrality in our generation plants and our own consumption by 2030 and to reach zero net emissions in all of our activities by 2040. Our Climate Action Plan, launched at COP27, reinforces our commitment to zero net emissions as a means of preserving the environment and generating employment and industrial development.

Our long-term plans are designed to deliver the environmental, economic and social benefits of decarbonisation at pace and at scale. In the latest edition of its report 'The A-List of Climate Policy Engagement', the think tank Influence Map recognises Iberdrola as the company with the highest combined score and level of engagement on climate issues across all sectors. But we need other players to adopt and maintain a similar orientation if we are to truly tackle climate change, the greatest structural challenge of our time.

The war in Ukraine and the global crisis caused by fossil fuels has reinforced the importance of speeding up the energy transition. But in some cases it seems like a crisis caused by gas is being paid for by renewables.

The next decade will be crucial if we are to meet climate targets and protect biodiversity, and we must all work together to achieve them. More than that, the benefits of delivering green growth can be seen in the 500,000 jobs we expect to support, directly and indirectly, through our investments to 2030.

500,000 jobs

supported through our investments to 2030



The way forward

2022 was marked by a range of government interventions in energy markets, which were in some cases reactive, short-term or even arbitrary in nature. 2023 is the year to show leadership and decisiveness to set us on a sustainable path out of a crisis caused by overdependence on fossil fuels.

Rather than divert energy into emergency interventions in electricity markets that penalise renewables developers for no good reason, governments and regulatory authorities now have the opportunity to focus on the long-term prize of backing sustained green investments so that we can emerge from the crisis in better shape.

In today's world, leadership means more than simply staying the course. It requires business leadership that is based on accelerating climate action rather than hindering it. And it requires political leadership to safeguard investor confidence and regulatory stability through policies and frameworks that recognise the importance of incentivising long-term investment in green energy security and in the millions of skilled jobs the energy transition will deliver.



Iberdrola at a glance

With more than 170 years of history, Iberdrola is today a global green leader in clean energies, networks and storage – the largest utility in Europe and the fourth largest in the world by market capitalisation. We supply energy to nearly 100 million people in dozens of countries.

Our Strategic Plan for 2023-2025 commits us to a record level of €47 billion of investment, focused on electricity grids and renewables to promote a safe, clean, and competitive system that will allow us to accelerate the energy transition.

Our 1.2 million kilometres of power lines will develop significantly over this period as we focus our investments into smart networks.

We have 40,000 MW of renewable operating capacity today, including hydroelectric, onshore and offshore wind and solar power. We are consolidating our global leadership position of 1300 MW of offshore wind with a further 1800 MW under construction and 5000 MW in advanced development.

Our 40,000 employees will be joined by 12,000 new hires by 2025 and we expect to support more than 500,000 jobs across our value chain by 2030.

The Group's contribution to society, enshrined in our bylaws through the concept of the social dividend, is underpinned by clear and measurable "ESG+F" targets.

As a result, in 2022 our fiscal contribution exceeded €7 billion worldwide, and we have published a new Climate Action Plan to achieve Net Zero emissions in our power plants and our own consumption by 2030 (Scopes 1 and 2), and across all our activity by 2040 (Scope 3).





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