

Aquila Group Sustainability Report 2022

# SCALING SOLUTIONS FOR THE PATH TO NET ZERO





We stand firm in our commitment to fight climate change

# LEADING IN UNCERTAIN TIMES

Just when the pandemic was ending and we finally hoped that things would return to 'normal', 2022 showed us that nothing could be further from reality. The feeling that we were living in an upside-down world that started in the early days of the pandemic increased dramatically on 24 February, when the Russian forces invaded Ukraine and to our surprise, we found ourselves dealing with similar challenges to those our parents and grandparents faced during the Cold War. We watched with anger and frustration as innocent people suffered and died in this conflict, continues to this day.

At the same time, as Co-Founder and CEO, I was proud to see the support from our employees for those who found themselves in need of the conflict or other social issues. In 2022, Aquila Group and our employees supported charities and people with more than 250,000 euros in donations and aid to show our commitment to the 'S' of 'ESG' (environmental, social and governance), something we plan to continue in the coming years, particularly as part of our project development activities.

When we look back on 2022 with regards to the world economy, we can see that serious macroeconomic changes occurred. Rocketing energy prices brought inflation, while central banks significantly increased interest rates, influencing markets and creating a challenging funding environment. Meanwhile, in April we set a record for the highest daily level of carbon dioxide in the atmosphere ever measured, which served as a stark reminder that the world community needs to step up our plans to reach the goals of the Paris Agreement and achieve global Net Zero emissions by 2050.

Our 2022 business results show that it was a year with many excellent results but also a few challenges. By the year's end, Aquila Group registered 14.7 bn euros of assets under management, up 19.5% from the year prior and 13.9 GW of installed capacity in wind energy, solar photovoltaic (solar PV) and hydropower assets. In other words, we generated 768 wind turbines, 235 solar PV parks and 276 hydropower plants, which together avoided more than 10m tonnes of CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions. We are also proud of our track record of 1.1 m sqm of green logistics projects completed or under development, with our clients also investing

in battery storage, energy efficiency, carbon forestry and data centres. We opened four new offices and saw our team grow to 688 employees. And, most importantly, we again did well for our clients in terms of fund and mandate performance. Most of our assets demonstrated the expected strong resilience to inflation. But it wasn't always easy to get to these results, and not everything went according to plan. The industry is facing challenges in the supply chain, permitting processes caused delays and the social licence of our projects is not always a given.

As a result of these challenging circumstances, and because we believe that leading in uncertain times requires an 'adapt or die' mentality, we reflected on our mission to ensure we are confident in our plans for the future. We confirmed our mission to support the 'E' of ESG: to become one of the world's leading sustainable investment and development companies for essential assets by 2030. And we further established our ambitious group-wide goal to show our commitment.

We plan to avoid 1.5bn tonnes of CO<sub>2</sub>e across all our portfolios and over their full lifetime by 2035. This represents 4% of 2021 worldwide CO<sub>2</sub>e emissions and requires that we invest in and develop radical solutions for decarbonisation. We set this moonshot goal because we believe in our ability to innovate and grow, and because we need more than incremental steps to effectively mitigate climate change.

In 2022 we also continued to expand our sustainability efforts and build our capabilities in the measurement of lifetime avoided emissions, an area that requires continuous methodological advances, to make sure we can keep an honest record of our progress. Please read on to learn more about our direction, progress and measurement methods in our Sustainability Report 2022. We hope it proves to be valuable in explaining our approach to ESG and sustainability, which we plan to continue to develop in the years to come.



“The macro forces of 2022 confirmed that we need to move fast to scale our solutions for climate change. To support the innovation required for the world to reach Net Zero by 2050 we set a group-wide goal – to avoid 1.5 bn tonnes of CO<sub>2</sub>e across all our portfolios and over their full lifetime by 2035.”

**Roman Rosslenbroich**  
CEO and Co-Founder of Aquila Group



Wind turbine near Desfina, Fokida region, Central Greece in front of the Gulf of Corinth.

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# 01 OUR COMPANY

Aquila Group is a founder- and partner-owned group of companies specialised in investment and asset development with a focus on essential assets. Essential assets include anything related to expanding or renovating the world's low-carbon infrastructure.

Currently this includes clean energy (wind energy, solar PV, hydropower and battery storage), sustainable infrastructure (green logistics and green data centres) and specialty asset classes, such as carbon forestry, energy efficiency, and growth equity in climate change mitigation. By investing in clean energy and sustainable infrastructure, we contribute to the global energy transition and strengthen the world's infrastructure backbone.

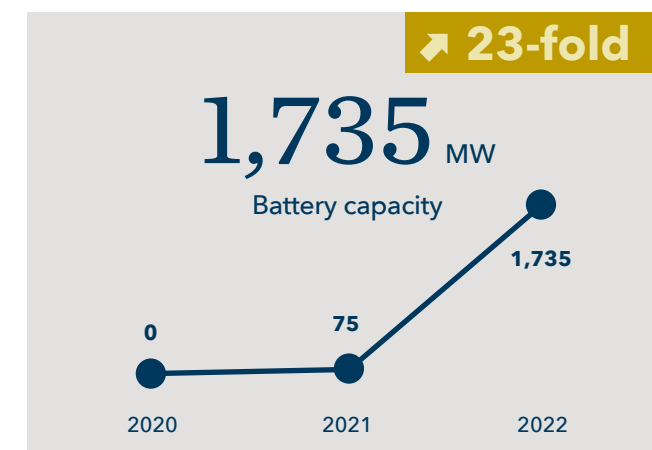
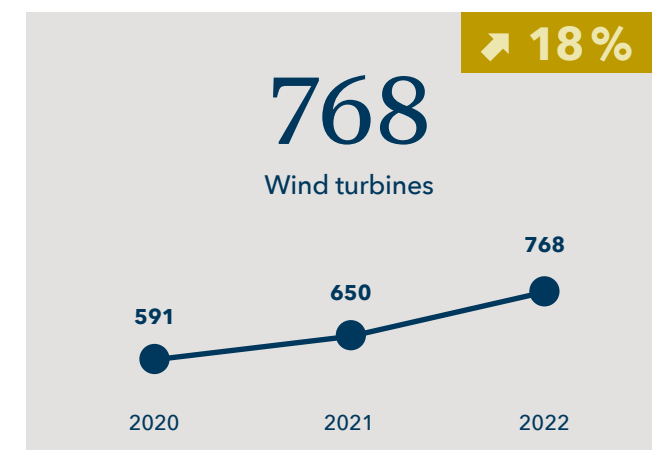
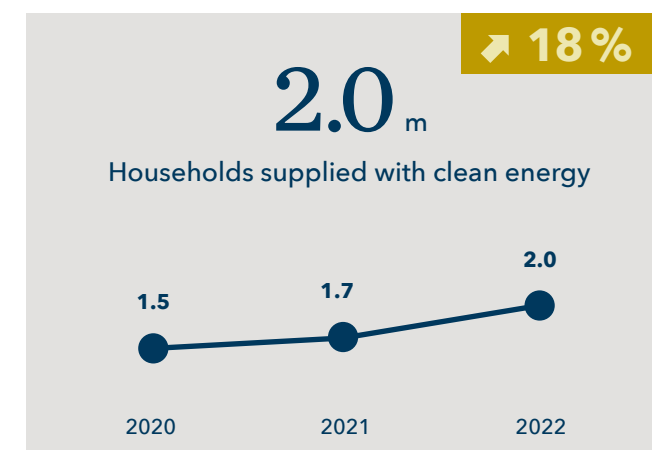
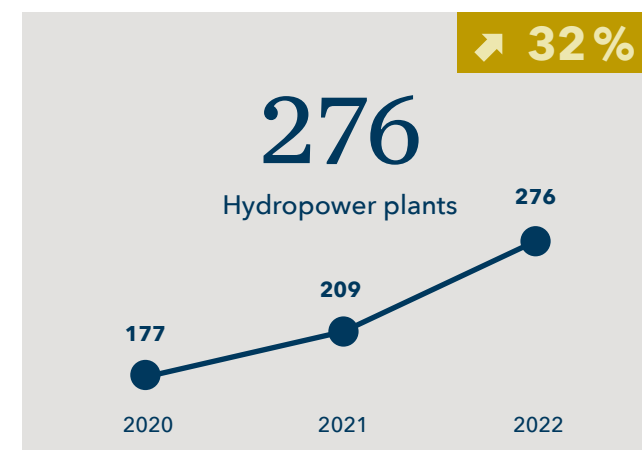
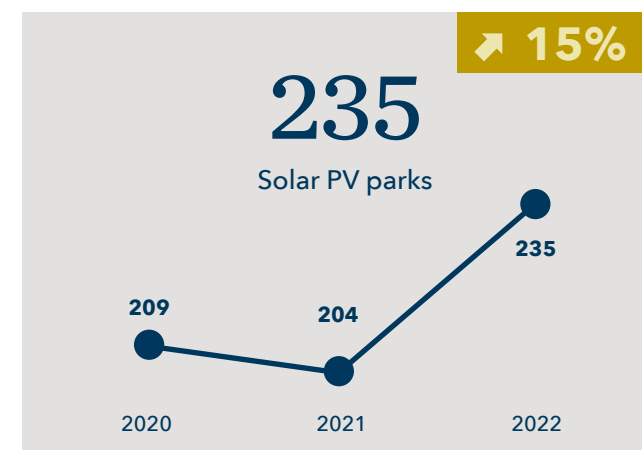
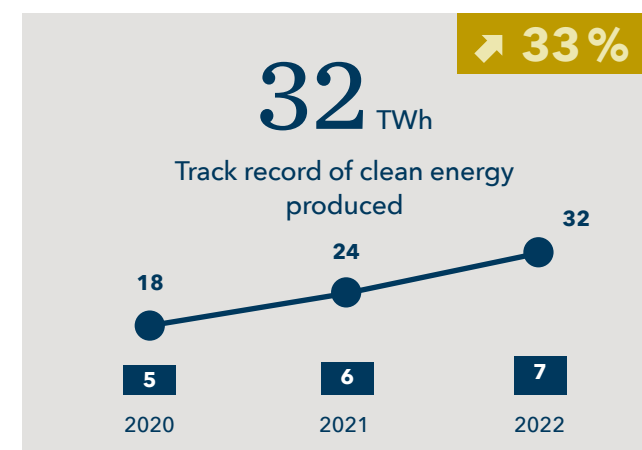
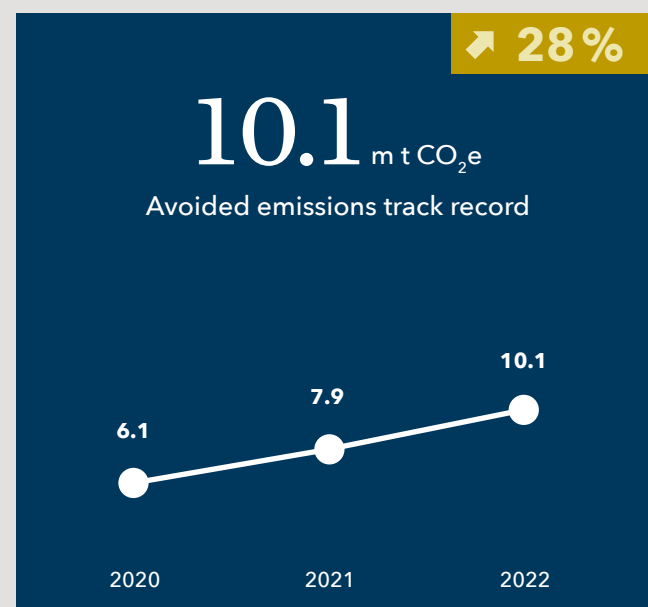
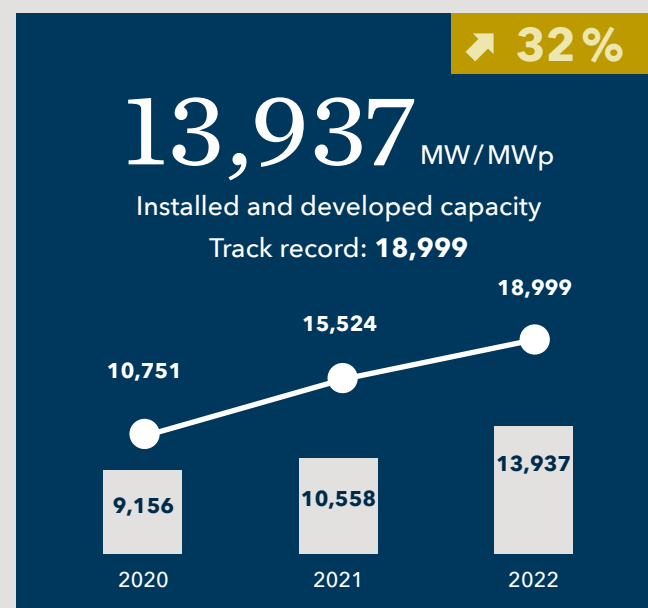
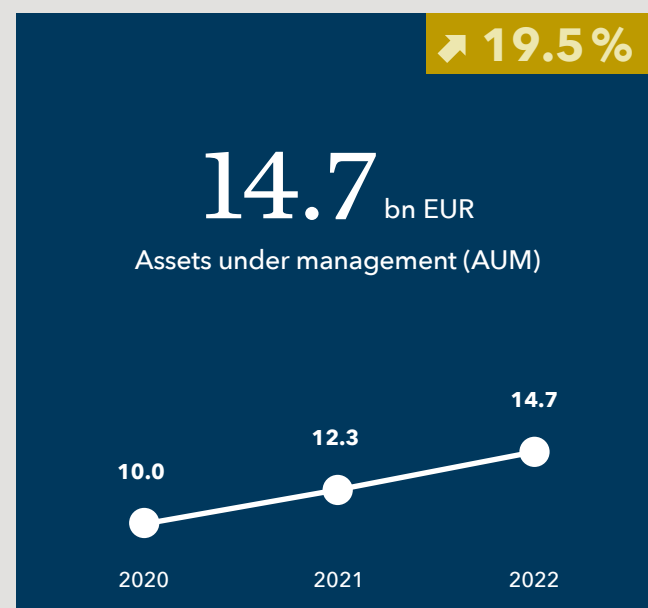
## 2022 in review - a consistent growth story across all our businesses

By the end of 2022, we had 14.7 bn euros of assets under management, which puts us in the top 10 infrastructure asset managers in Germany<sup>1</sup>. We have a track record of 18.9 GW of installed and developed capacity in clean energy assets, with 13.9 GW currently installed capacity in wind energy, solar PV and hydropower assets, which translates into 768 wind turbines, 235 solar PV parks and 276 hydropower plants. Since the inception of our science-based methodology, the cumulative CO<sub>2</sub>e avoidance of our annual clean energy portfolio is more than 10 m tonnes, based on the actual electricity production and carbon intensities of regional electricity grids.

Additionally, we reached a track record of 1.1 m sqm of green logistics projects completed or under development and our clients invested in battery storage solutions, energy efficiency, carbon forestry and data centres. This allowed us to increase our installed capacity in battery storage to 1,735 MW, invest in 31 energy efficiency projects and manage the growth of our forestry portfolio to reach 13,447 ha, while our data centres are still under-going development and construction.

We ended the year with 688 employees (of 56 different nationalities), whom we call 'eagles', operating across 17 countries worldwide.

<sup>1</sup> Prequin Pro, League Table for Infrastructure (December, 2022). Available at: <https://classic.prequin.com/signin/homepage?ReturnUrl=https%3a%2f%2fpro.prequin.com%2f>





## Our track record – more than 15 years of experience focused on climate change

Founded in 2001 by Roman Rosslenbroich and Dieter Rentsch, Aquila Group started to specialise in carbon mitigation in 2007 with the launch of two funds – climate protection and forestry management – and through the commitment to be climate neutral in the management of our own operations. The focus on direct investment in renewable energy assets started in 2009 with wind energy, followed by our first investment in solar PV energy in 2010 and in hydropower in 2011.

Another important milestone was licensing as an alternative investment fund manager in Luxembourg and Germany in 2013, which enabled the structuring and distribution of alternatives funds, and the launch of our green logistics business in same year 2013.

To meet the growing demand for capital and accelerate our expansion into Asia, a strategic partnership with one of Japan's largest investment banks, Daiwa Energy & Infrastructure, was established in 2019. In the following year, we entered the energy efficiency and data centre markets to further broaden the investment universe of our clients.

Given these origins, sustainability has always been part of our value system and we believe that it is critical that we manage ESG factors throughout the entire value chain. *(For more details, see section 5.4., page 40).* In order to measure our commitment to sustainability and the fight against climate change, we introduced a group-wide goal in 2020 – to avoid 1.5 bn tonnes of CO<sub>2</sub>e over the lifetime of our assets – and developed a proprietary, science-based methodology. *(For more details, see section 2.0., page 14)*

To support how we manage ESG along the value chain of our business, we continuously seek to enhance our sustainability standards. For example, we joined the United Nations (UN) Environment Programme Finance Initiative in 2008. In 2017, we started to benchmark our infrastructure funds on their ESG performance, using the Global Real Estate Sustainability Benchmark, and joined the Carbon Disclosure Project. In the following year we became a signatory of the UN Principles for Responsible Investment ('PRI').

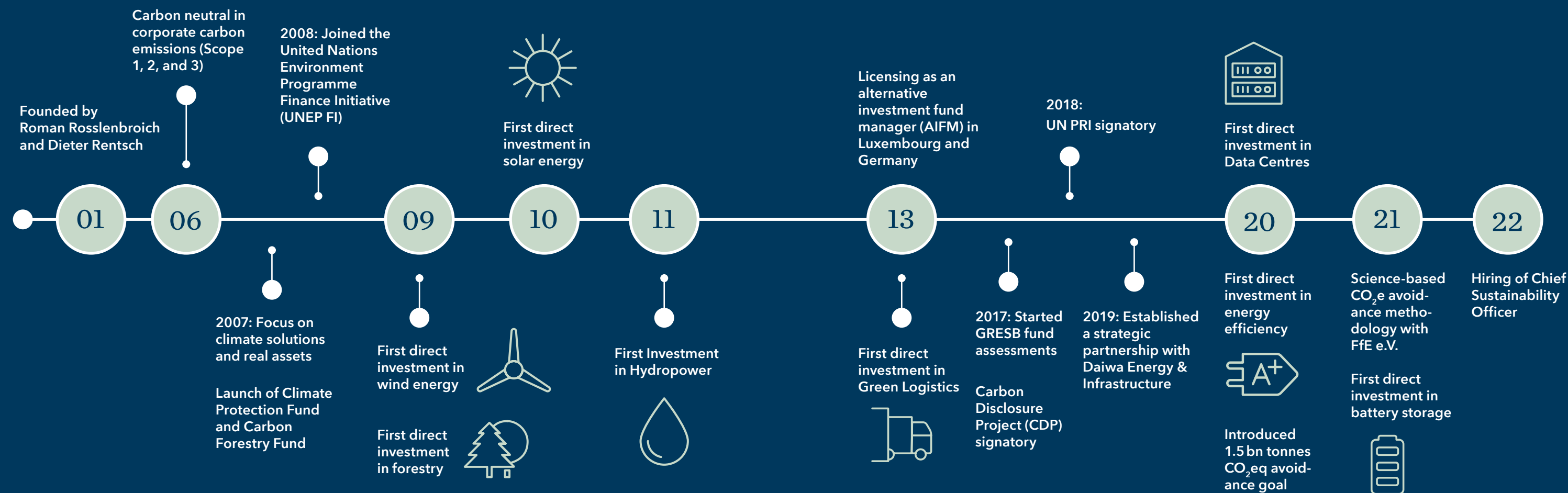




Image: © Matt Howard | unsplash.com

## Aligning our mission and business strategy

## 02 OUR COMMITMENT

Our focus is on generating – i.e., developing, building and operating – essential assets in a sustainable way, and on being the investment manager of choice for institutional clients seeking to make sustainable investments.

Essential assets are those related to expanding or renovating the world's low-carbon infrastructure. This includes clean energy sources like wind, solar PV, hydropower and battery storage; sustainable infrastructure (green logistics and green data centres); and investment asset classes such as carbon forestry, energy efficiency, and growth private equity in climate change mitigation.

We believe decarbonisation is crucial to protecting the planet from climate change and represents an ongoing, powerful trend that will drive positive change for decades. That's why we are working hard to help enable decarbonisation and the transition to a sustainable, Net Zero world economy.

Our track record shows that we have a solid foundation from which to build our future direction of travel – a direction that was established by our founders, our leadership team, and our

shareholders years ago. In 2022 we formalised our mission to become one of the world's leading sustainable investment and development companies for essential assets by 2030.

To show commitment to our mission, we took our sustainability efforts one step further by hiring a Chief Sustainability Officer and developing a sustainability strategy that consolidates the ESG work we already do across our firm and shows the way forward for all our business units, assets and client portfolios.

We set a group-wide goal to avoid 1.5 bn tonnes of CO<sub>2</sub>e by 2035 in our portfolio's lifetime, which is equivalent to 4% of worldwide CO<sub>2</sub>e emissions in 2021.<sup>2</sup> We plan to achieve this goal by initiating, developing and managing essential assets along their entire value chain and through their full lifecycle, around the world.

<sup>2</sup> Worldwide CO<sub>2</sub>e emissions in 2021 were 36.3bn tonnes according to the International Energy Association: IEA, "Global Energy Review: CO<sub>2</sub> Emissions in 2021" (March, 2022) p. 3. Available at: <https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2>

### Our mission spans four ambitions. By 2030 we aim to be:

- A leading player in generating essential assets in a sustainable way;
- The investment manager of choice for institutional clients seeking sustainable investments;
- Recognised as an industry player that cares about the community;
- An organisation that leads by example in managing our own environmental footprint and supporting our talent to thrive and grow.

Our mission and ambitions not only outline how we are driving the world's energy transition and acting as an enabler of a future Net Zero economy,<sup>3</sup> but also address how we plan to support a just transition by supporting our communities along the way and leading by example in the way we manage our own talent and operations.

Our goal is to develop, construct, operate and manage all our assets for the long term and work to provide appropriate returns to all our stakeholders. Inherent in our focus on climate action – UN Sustainable Development Goal (SDG) #13 – is our commitment to mobilise capital to all related SDGs, such as affordable and clean energy (SDG #7), industry, innovation and infrastructure (SDG #9) and sustainable cities and communities (SDG #11).

This direction of travel, and our mission, is synonymous with our business strategy. Our Sustainability Office leads the way in putting our sustainability commitment into practice, *as explained further in section 3, page 17*. It supports our senior leadership team to further embed sustainability into our DNA by making the mission and ambitions part of our performance management processes and part of every client conversation. In addition, we are transparent about our targets and progress wherever possible, to demonstrate our commitment.

<sup>3</sup> Through the 2015 Paris Agreement, world governments committed to curbing the global temperature rise to well below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. Climate scientists predict that this will require the world to reach Net Zero by 2050. Net Zero means to completely negate the amount of greenhouse gases produced by human activity and released into the atmosphere. It can be achieved by reducing emissions and implementing methods of absorbing carbon dioxide from the atmosphere (for hard to abate areas).



“Our founders decided to focus on the fight against climate change more than a decade ago, setting the foundation for our commitment. Our mission, ambitions and group-wide goal will help us to drive the Net Zero economy and ensure that we support a just transition”

Angela Wiebeck  
Chief Sustainability Officer



## Our mission

*Become one of the world's leading sustainable investment and development companies for essential assets by 2030.*

## OUR MISSION SPANS FOUR AMBITIONS. BY 2030 WE AIM TO BE:

01

A **leading player** in generating **essential assets** in a **sustainable way**

02

The **investment manager of choice** for institutional clients seeking sustainable investments

03

Recognised as an **industry player that cares** about the community

04

An organisation that **leads by example** in managing our own environmental footprint and supporting our talent to thrive and grow

## Lifetime avoided emissions – a science-based approach

According to the International Energy Association 'World Energy Outlook 2022', the power sector is expected to lead global emission reductions by 2030 – both in terms of total CO<sub>2</sub>e reduction contribution and rate of change.<sup>4</sup> Industry experts and climate scientists have created a variety of pathways for reaching Net Zero carbon emissions by 2050.<sup>5</sup>

Decarbonisation in many sectors (e.g., transport, chemicals, materials) relies on rapid advances in clean energy. Our commitment to expand or rebuild the world's low-carbon infrastructure and our focus on clean energy will contribute to global efforts to achieve Net Zero. And to align our whole company behind this transition, we set an ambitious group CO<sub>2</sub>e target – to avoid 1.5 bn tonnes of CO<sub>2</sub>e by 2035 during our portfolio's lifetime.

To measure and report our progress towards this goal, we use lifetime avoided emissions ('LAE') calculations. Avoided emissions are defined as emissions that are not released into the atmosphere because of an action or policy, such as renewable energy sources, energy efficiency measures or reducing the use of fossil fuels.<sup>6</sup> LAE is based on the same concept, but covers the entire lifetime of a given product, technology or project.

Given the increased popularity – and increased scrutiny – of CO<sub>2</sub>e avoidance claims, as well as the lack of standardisation and peer-reviewed methodology, we acknowledge that reporting on LAE bears the risk of misrepresentation.<sup>7</sup> This is why it is crucial that the methodology we use to measure LAE follows a robust, conservative, and science-based approach.

To help us to do this, we built a proprietary approach with an independent and recognised research institute. (To learn more, see the *Aquila Capital ESG Report 2021*.) The research institute Forschungsstelle für Energiewirtschaft e.V. (FfE) helped us to create a methodology to measure LAE which was reviewed and verified by an independent auditor – TÜV Rheinland – as "reasonable, transparent and appropriate".

This calculation takes a variety of factors into account, including:

- Actual and projected lifetime production of our clean energy assets and solutions;
- Asset-specific emissions, such as raw material sourcing, manufacturing, transport, installation, use phase and decommissioning; and
- Region-specific projected grid intensity.

The calculation is conducted according to two scenarios<sup>8</sup> to recognise the fact that the future is difficult to predict.

In fact, we recognise that projections of the future electricity grid are unlikely to occur as laid out in the scenarios available. Further, a review of our LAE methodology has shown us that underlying these predictions are assumptions and constraints that can change quickly and with material implications. It also demonstrates that our goal, which is intended to drive essential asset development, is dependent on factors outside of our control as we measure our progress.

Due to this high degree of uncertainty regarding the development of the future grid mix, we favour a range-based approach and will seek to measure our achievement of our goal according to a range of possible outcomes. Our work to evaluate the scenarios underlying our LAE is planned to continue in 2023 and beyond.

### REPORTING ON LAE

*We acknowledge that reporting on LAE bears the risk of misrepresentation. This is why it is crucial that the methodology we use to measure LAE follows a robust, conservative and science-based approach.*

We are assessing the underlying assumptions of the scenarios we use to ensure their validity and appropriateness, we also plan to reference a range of possible outcomes. Our objective is to ensure that we employ this analysis in a way that is scientifically robust, as accurate as possible and suitable for the measurement of our business activities.

Our LAE methodology will continue to be enhanced and expanded on – for example, with the integration of our battery energy storage solutions next year. We plan to be transparent about this evolution as well as the progress that we make towards our goal.

<sup>4</sup> International Energy Agency (IEA), "World Energy Outlook 2022" (October, 2022). Available at: <https://www.iea.org/reports/world-energy-outlook-2022>

<sup>5</sup> Science Based Targets, "PATHWAYS TO NET-ZERO" (October, 2021). Available at: <https://sciencebasedtargets.org/resources/files/Pathway-to-Net-Zero.pdf>

<sup>6</sup> WORLD RESOURCES INSTITUTE, "Do We Need a Standard to Calculate "Avoided Emissions"?" (November, 2013).

Available at: <https://www.wri.org/insights/do-we-need-standard-calculate-avoided-emissions>

<sup>7</sup> WORLD RESOURCES INSTITUTE, "ESTIMATING AND REPORTING THE COMPARATIVE EMISSIONS IMPACTS OF PRODUCTS" (January, 2019). Available at:

[https://ghgprotocol.org/sites/default/files/2023-03/18\\_WP\\_Comparative-Emissions\\_final.pdf](https://ghgprotocol.org/sites/default/files/2023-03/18_WP_Comparative-Emissions_final.pdf)

<sup>8</sup> Namely IMAGE SSP2 1.9 W/m<sup>2</sup> and IMAGE SSP2 2.6 W/m<sup>2</sup>. These scenarios assume a certain level of radiative forcing which is associated with a global-warming potential of 1.5°C and 2.0°C, respectively, compared pre-industrial levels – the former scenario being consistent with the Paris Agreement.



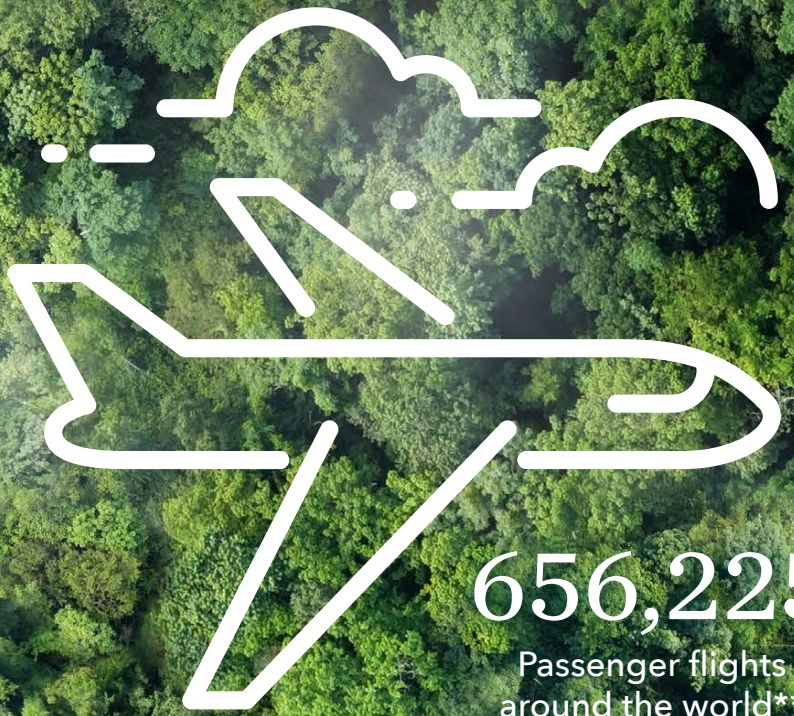
OUR GROUP CO<sub>2</sub>e TARGET: TO AVOID 1.5 BN TONNES  
OF CO<sub>2</sub>e BY 2035 DURING OUR PORTFOLIO'S LIFETIME.

# 1.5 bn

TONNES OF LIFETIME  
AVOIDED CO<sub>2</sub>e EMISSIONS  
IS EQUIVALENT TO...

## All cars

In Europe driven  
for one year\*



## 656,225

Passenger flights  
around the world\*\*

## 364

Coal-fired power plants  
running for a year\*\*\*



Sources and calculation methods for the comparisons of our lifetime avoided emissions goal:

\* All cars in Europe driven for one year: The number of gasoline-powered passenger cars driven for one year that is equivalent to 1.5 bn t CO<sub>2</sub>e according to the Greenhouse Gas Equivalencies Calculator of the US Environmental Protection Agency ('EPA'), Retrieved on April 4<sup>th</sup> 2023 from: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> is 293,205,587. According to the European Automobile Manufacturers Association (ACEA), there were approximately 246 million passenger cars on European roads in 2020, retrieved from ACEA.auto on April 4<sup>th</sup> 2023: [https://www.acea.auto/files/ACEA\\_Pocket\\_Guide\\_2022-2023.pdf](https://www.acea.auto/files/ACEA_Pocket_Guide_2022-2023.pdf). The number of passenger vehicles driven for one year that are equivalent to 1.5 bn t CO<sub>2</sub>e is hence similar to the number of passenger vehicles in use in Europe. This is a conservative estimate since not all vehicles in Europe are gasoline-powered and the number of vehicles derived from the CO<sub>2</sub>e avoidance goal is higher than the number of cars on European roads.

\*\* Passenger flights around the world: This number is derived from passenger flight emissions data retrieved on April 4<sup>th</sup> 2023 from the International Civil Aviation Organization; <https://applications.icao.int/icec/Home/Index>. The total emissions associated with a passenger flight around the world based on a standard itinerary from New York to Dubai, Bangkok, Sydney, Los Angeles and back to New York in the economy class is 2,285.80 kg CO<sub>2</sub>. Hence 1.5 bn t CO<sub>2</sub> is equivalent to 1.5 billion tonnes divided by 2,285.80 kg = 656,225,391 passenger flights.

\*\*\*Coal-fired power plants a year: This number is retrieved directly from the Greenhouse Gas Equivalencies Calculator of the US Environmental Protection Agency (EPA) on April 4<sup>th</sup> 2023: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.



### An organisational setup with clear sustainability governance

## 03 OUR STRUCTURE

Sustainability and the challenges of addressing climate change have always been at the heart of our value system and integral to our investment strategies.

That's why our mission, which is synonymous with our business strategy, is to become one of the world's leading sustainable investment and development companies for essential assets by 2030.

To make it easier to understand our structure and the contents of this report, we define our entities as follows:

- **Aquila Group** is a group of companies specialised in investment and asset development and headquartered in Hamburg, Germany. As a diversified holding company group, we are focused on generating and managing essential assets in clean energy and sustainable infrastructure on behalf of our clients.
- **Aquila Capital Investmentgesellschaft mbH** ('Aquila Capital') is the regulated alternative investment fund management entity of Aquila Group, offering tailor-made fund vehicles and investment solutions for investors who wish to mobilise capital for the energy transition and decarbonisation of the global economy. Aquila Capital is fully licensed under German law and subject to supervision by the German Federal Financial Supervisory Authority (BaFin).
- **Aquila Clean Energy EMEA** ('ACE EMEA') is our clean energy business in Europe focused on advancing the energy transition by developing, managing and owning clean energy assets. ACE EMEA has the aim to be one of the industries' most value creating deployers of capital in the green transformation with a focus on three areas: Solar PV, onshore wind and battery storage technologies.
- **Aquila Clean Energy APAC** ('ACE APAC') is our clean energy business in Asia Pacific. With offices in Singapore, Taiwan, Japan, South Korea and New Zealand, ACE APAC has a strong local presence in the region.
- **Aquila Sustainable Infrastructure GmbH and its affiliated companies** ('ASI') focuses on green logistics, data centre and residential real estate assets within Aquila Group. ASI currently develops and manages sustainable assets in Germany, Italy, Norway, Portugal and Spain.

Decisions about our sustainability commitment and ESG work are crucial. Therefore, they are made at the very top of our organisational structure.

### Aquila Group Strategy Board ('AGS')

The AGS has the power to create and set group-wide strategies, and members include the company's Co-founders, business unit heads and key functional group heads. The AGS approves the sustainability commitment of Aquila Group – proposed by the Chief Sustainability Officer (CSO) – and reviews progress annually as part of its responsibility for sustainability governance.

### Aquila Group Operations Board ('AGO')

Responsible for making decisions about all operational matters, the AGO is the most important body when it comes to steering and resourcing the implementation of our sustainability commitment. Business unit heads, functional group heads, and operational heads are members of the AGO which is chaired by our Chief Operations Officer. The AGO is updated quarterly about progress on all key sustainability projects and programmes. It also shares governance responsibilities with the AGS.

We have set up a number of other platforms so that our businesses, divisions and functions can work together to ensure that the initiatives to deliver our sustainability commitment are embedded throughout the whole company, top-down and bottom-up, and to check that we are making continuous progress:



### Sustainability Forum

A platform for senior leaders from each business division and function who are focused on how best to achieve the key group-wide ambitions of our sustainability commitment. Their role is to drive effective implementation by providing guidance on organisational alignment and project design, especially when high-level and complex coordination and cooperation is required between different parts of the company.

### Sustainability Office

The Sustainability Office – comprised of the ESG department and the CSO – leads the way in putting our sustainability commitment into practice, working with senior leadership to embed sustainability across the Aquila Group. Its responsibilities include monitoring progress, ensuring transparency and supporting client discussions. The Sustainability Office also advances ESG-related methodologies and processes and leads the implementation of sustainability-related regulation.

### Extended Sustainability Office

This group – which includes the Sustainability Office and sustainability managers from the business responsible for the management of ESG impacts in essential asset development, construction and operation – aligns top-down and bottom-up processes to effectively manage ESG risks across the value chain. It creates plans to resolve methodological, structural and/or resource challenges that arise while identifying, mitigating and managing ESG impacts. It also works with the sustainability office to support implementation.





Battery energy storage system ('BESS') in Ruien, Belgium.

A comprehensive product suite of essential asset management tailored to client needs

## 04 SUPPORTING OUR CLIENTS IN THE ENERGY TRANSITION

The transition to a carbon-neutral society requires significant investment in new technologies and infrastructure as well as investment in clean energy, given the energy sector's significant contribution to global greenhouse gas emissions, which represent about 40 % of total global CO<sub>2</sub> emissions.<sup>9</sup>

Aquila Capital Investmentgesellschaft mbH (Aquila Capital) is the investment management company within the Aquila Group. Headquartered in Hamburg, Germany, but with offices in Luxembourg, London, Madrid and Amsterdam, Aquila Capital is a fiduciary fund manager to institutional clients wishing to invest in clean energy and decarbonisation solutions. Clients include international insurance companies, pension funds, regional banks, asset managers, churches, religious communities and family offices located in Germany, the Netherlands, the UK, France, Spain, Switzerland and Japan. Fully regulated under BaFin, the German Federal Financial Supervisory Authority, Aquila Capital has licences to manage alternative investment funds (AIFs) as well as undertakings for collective investment in transferable securities (UCITS).

We aim to be the investment manager of choice for clients seeking to invest in essential assets such as onshore wind, solar PV,

battery energy storage systems, hydropower, green logistics, data centres, energy efficiency and carbon forestry, as well as private equity investments in decarbonisation technologies.

### 2022 in review

Over the year, Aquila Group increased assets under management by 19.5 % to 14.7 bn euros, up from 12.3 bn in 2021, and we continued to advance our product offering. Aquila Capital products include open-ended and closed-ended AIFs that invest in essential assets across all stages of the development cycle, from development to construction and through to operations. The funds enable our clients to mobilise capital towards the energy transition and decarbonisation.



**Christian Holste**  
Head Client Advisory DACH



**Lars Meisinger**  
Head Client Advisory International

In addition, we successfully implemented the requirements of the EU Sustainable Finance Disclosure Regulation (SFDR) and EU Taxonomy to give our clients better transparency with regards to sustainability-related claims and commitments. Despite industry challenges because of missing clarifications in the interpretation of the requirements from the authorities, we used a conservative approach to implement this regulation. We are now confident in the classification of our product range, which shows that more than 70 % of the funds, currently under distribution, are defined either as an Article 8 or Article 9 fund, as shown in the box below.

The SFDR stipulates that all funds that are deemed sustainable need to prove they are not harming the environment in another capacity, which is why we dedicated significant time and resources to setting up the processes and systems that will be required for obtaining the necessary data to calculate the principal adverse impact (PAI) indicators for our respective funds. In 2022 Aquila Capital, together with a European pension fund, set up a new Article 9 fund that is focused solely on clean energy assets that meet the criteria of sustainable investments and the EU Taxonomy. Our ability to manage the ESG profile of essential assets, from development through to construction and operations, gives us a strong foothold in the creation of new products classified as the most sustainable, Article 9, by the SFDR.

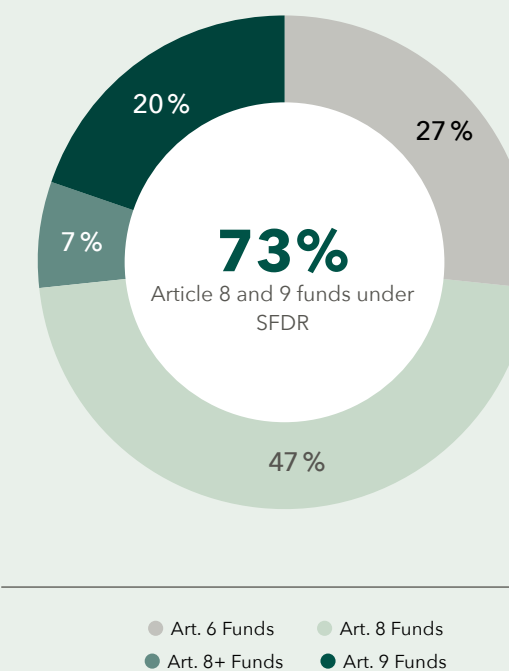
### ABOUT THE SFDR

The SFDR is a European Union regulation that introduces transparency and disclosure requirements for financial market participants (such as asset managers, investment firms and insurance companies) and financial products (such as investment funds) to mobilise more capital to sustainable investments. While technical and challenging from a data perspective, these requirements are a welcome guideline to help resolve greenwashing accusations.

The SFDR classifies financial products into three categories based on their sustainability characteristics and as defined in the respective articles within the regulation:

- **Article 6:** Products that do not promote environmental or social characteristics
- **Article 8:** Products that promote environmental or social characteristics
- **Article 9:** Products that have a sustainable investment objective

Financial market participants offering products falling under Article 8 or Article 9 are required to disclose additional information in their pre-contractual documentation and periodic reports, such as how the products integrate sustainability factors into their investment decisions, what the sustainability objectives are, and which methodologies will be used to assess and measure their sustainability characteristics and/or impacts.

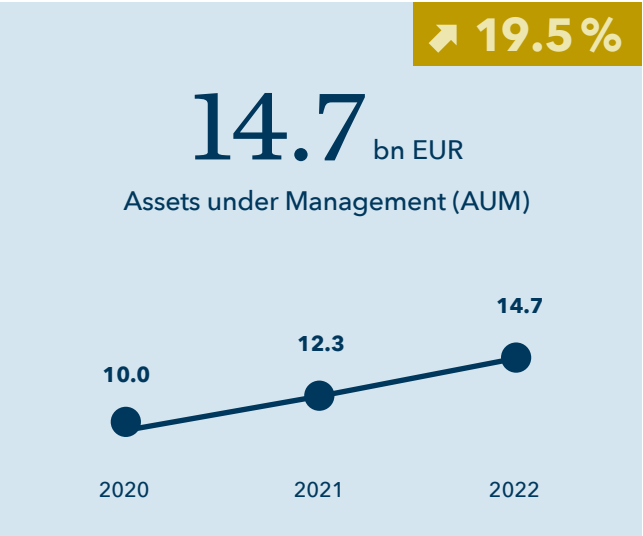


<sup>9</sup> International Energy Agency (IEA), "CO<sub>2</sub> Emissions in 2022" (March, 2023). Available at: <https://www.iea.org/reports/co2-emissions-in-2022>



To enhance our ESG performance, we participate in Global Real Estate Sustainability Benchmark (‘GRESB’) infrastructure assessments and have been doing so since 2017. In 2022, we received a five-star rating (out of five) for three of the six funds we submitted, meaning those funds were located in the top quantile for ESG performance relative to their peer group. We also received very helpful feedback in the categories of ESG risk management and reporting – something we plan to incorporate in the management of these funds going forward.

A signatory to the Principles for Responsible Investment (PRI) – a UN-supported international network of financial institutions working together to incorporate sustainability in investment decision-making. In this year’s PRI assessment, we received a 5/5-star rating in the ‘direct infrastructure’ category, a 4/5 rating in the ‘direct real estate’ category and a 4/5 rating in the ‘investment and stewardship policy’ category.



ABOUT THE EU TAXONOMY

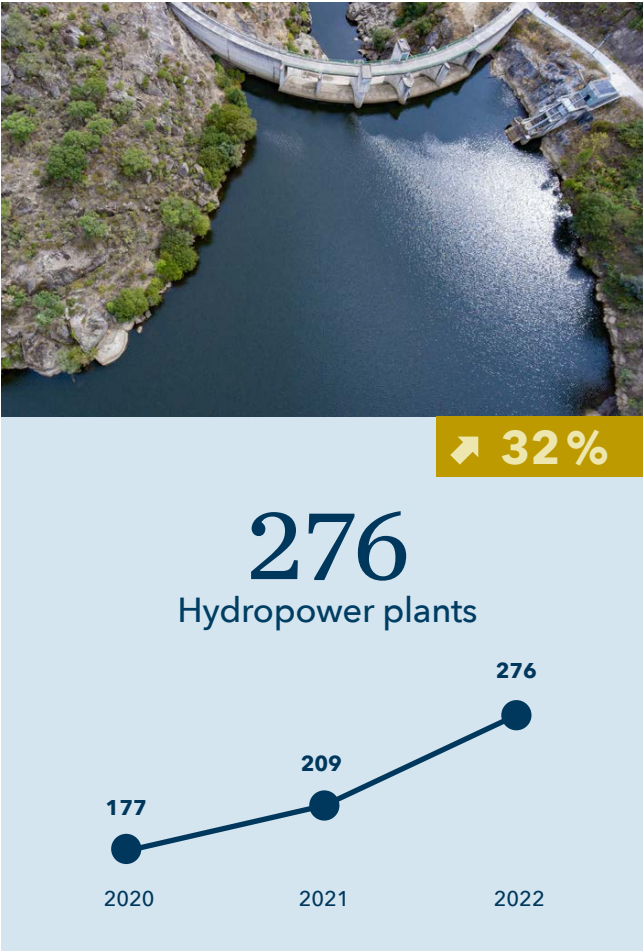
The EU Taxonomy is a classification system developed by the EU to define what economic activities can be considered environmentally sustainable. It aims to provide a common framework for identifying and classifying economic activities that contribute to the EU’s environmental objectives, particularly those related to climate change mitigation and adaptation. The EU Taxonomy is a key tool in the implementation of the EU’s sustainable finance agenda, including the EU Sustainable Finance Action Plan and the SFDR.



ABOUT PRI ASSESSMENTS

A PRI assessment is a process conducted by the UN-supported Principles for Responsible Investment (PRI) initiative. PRI signatories represent a global network of investors who are committed to integrating ESG factors into their investment practices and decision-making. The PRI assessment is designed to encourage transparency and accountability among members and to promote a continuous improvement approach in the way ESG factors are implemented across investment portfolios.

Through our fiduciary fund management business, we support our clients to invest in the energy transition and in specialty investment strategies that support Net Zero. For the former, we offer investment solutions that finance all stages of essential asset development, from greenfield and early-stage development through to construction and operational phases, so that clients can invest according to their risk/return profile and liquidity needs. This diverse offering allows clients to direct capital towards the appropriate clean energy and battery storage projects, and to participate in their performance, while at the same time making a significant contribution to the energy transition. This is made possible by structuring investment solutions that require minimal complexity from our investors and adhere to strict governance and ESG standards. (To learn more about our approach to onshore wind, solar PV, battery energy storage systems, green logistics and data centres, see sections 5.1 – 5.3., starting at page 30)



Hydropower

Aquila Capital is also home to the Hydropower business. Hydropower accounts for the largest share of clean energy generation in Europe and is considered a fully matured technology. With regular maintenance, it can generate electricity reliably over many decades with high value retention and at low operating costs.

One of our hydropower investments is Småkraft. Its vast fleet of small-scale hydropower plants makes Småkraft Europe’s largest privately owned company within its space. For over 20 years, the value created has been shared with its stakeholders including owners, local landowners, and municipalities and marks an important contribution to the transition to a renewable and sustainable society. This was re-confirmed by the latest GRESB assessment where Småkraft again received a five-star rating, representing the top quantile position for its ESG performance relative to peers.

To help our clients to mobilise more capital towards activities that support the climate goals of the Paris Agreement, we also explore attractive investment cases in peripheral areas such as energy efficiency and carbon forestry, as well as private equity investments in decarbonisation technologies. These are outlined in section 4.1. below.



Seizing diverse opportunities for decarbonisation

# 4.1 SPECIALTY INVESTMENT STRATEGIES THAT SUPPORT NET ZERO

To offer the best possible service to clients, we ensure we are up to speed with emerging developments supporting the energy transition and decarbonisation solutions, such as green hydrogen, carbon capture, synthetic fuels and so on.

Two key established investment lines are energy efficiency and carbon forestry, while a third new investment strategy around growth equity has been put into motion.

## Energy efficiency

Energy efficiency is an important pillar for Net Zero, as it cuts primary energy consumption and thereby reduces CO<sub>2</sub>e emissions before they even occur. The investment yield from energy efficiency projects stems from the associated cost savings after implementation.

We have been actively pursuing energy efficiency investments since 2020 and these strategies deploy capital in diversified portfolios throughout Europe. We fund technologies ranging from LED lighting solutions, solar PV in self-consumption installations and building retrofit solutions to digital optimisation approaches. The latter is the process of using technologies such as metering devices or algorithms in order to render operating processes less energy intensive, thereby often also improving the customer’s operating costs.

In 2022 the energy efficiency team successfully acquired more than 90m euros across 31 projects in multiple jurisdictions in the EU. The portfolio is diversified across technologies, geographies and counterparties. It includes financing and maintenance contracts for sub-metering, water management and heat pump services in Germany, solar PV in self-consumption through power purchase agreements in Spain, as well as clusters of energy efficiency projects for large-scale residential buildings in Italy and Spain, to name a few.



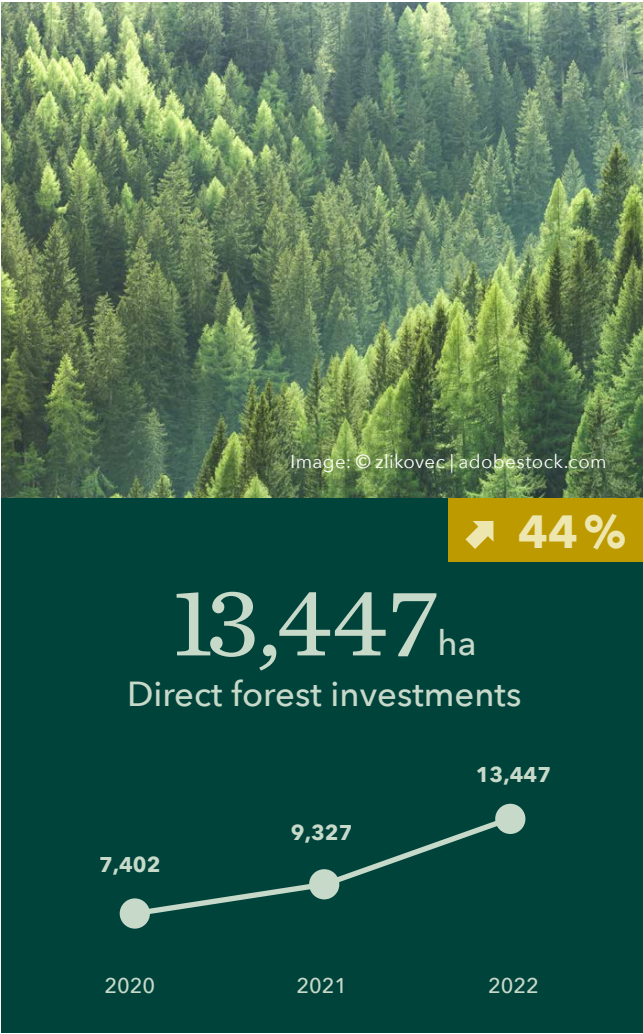
This sector requires large increases in investment to reach the targets agreed in Paris and remains a relatively underdeveloped lever in achieving a Net Zero global economy. To change this, we plan to launch another energy efficiency fund, predominantly in Europe, that will qualify as an Article 8 fund and focus on the reduction of primary energy consumption through the careful selection of energy efficiency projects.

## Carbon forestry

Timber has received increasing interest from institutional investors as an asset class that can stabilise their portfolios, will benefit from increased global demand and has a low volatility profile. Just as importantly, timber actively binds carbon, so it presents an effective way to decarbonise an investment portfolio. Additionally, with corporates increasingly obliged to find ways to credibly offset their emissions, carbon sequestration creates potential for additional revenue sources.

Our dedicated experts combine strong forestry knowledge with extensive experience of the reporting and controlling requirements in this sector. They also collaborate with prestigious timber managers to ensure the best results from forestry investments. Since we entered the market in 2007, we currently have direct investments in approximately 13,447ha of forest and in 9,000ha indirectly, through a fund of funds portfolio.

This year resulted in many positive developments for our carbon forestry efforts. In June 2022, one of our timber funds closed a transaction for a 994ha forest freehold property planted with young Pinus radiata trees, on the North Island of New Zealand. The trees generate carbon credits under the New Zealand Emissions Trading Scheme, which are sold under an offtake agreement. This sequestering of carbon is an important contribution to the fund’s environmental objective of mitigating climate change and provides yield enhancement opportunities.





In addition, two new team members joined to work on timber and carbon projects, while an external valuation of all assets within the fund led to a significant increase of unrealised valuation – mainly related to rising global land prices.

Next year we plan to launch a new fund that will focus on timber investments that contribute to decarbonisation. It will qualify as an Article 9 product under SFDR and will deploy its capital in timber and natural climate solutions projects – meaning part of the business model will be its focus on the sequestration of carbon – in North America, Europe and Oceania.



Image: © Hiob | istockphoto.com

### Growth private equity

In 2022, we established our growth private equity team by recruiting two dedicated investment professionals who bring deep and multi-cycle experience in direct private equity investments focused on decarbonisation. The growth private equity investment strategy is to take minority stakes in fast growing, commercially viable companies that are significantly contributing to climate goals.

The team, in close co-operation with the sustainability office is in the process of integrating sustainability metrics (for ESG integration and impact) into the Aquila Capital's investment process. Target strategy volume is 250m euros with an ambition to back 10–15 companies and realise a net return of 15–20% at the fund level. Sustainability measurement (ESG and impact) will be an integral part of the investment strategy with the goal to meet SFDR Article 9 reporting and monitoring requirements.



Bridging the gap from idea to solution

## 4.2 HOW WE SUPPORT INNOVATION

Innovation in the renewable energy sector can have a significant positive impact on the environment by reducing greenhouse gas emissions, fostering sustainable development and protecting natural resources.

### Aquila Capital Transformation Award

We believe that supporting innovation can help to accelerate the transition to a low-carbon economy and mitigate the impacts of climate change. We explicitly want to sponsor young academics from all over the world in their contribution to practical solutions to the decarbonisation challenge. So, in 2019, we set up the Aquila Capital Transformation Award to support outstanding research that focuses on practical solutions to combat climate change and its repercussions, as well as to reflect our dedication to social responsibility. The award is endowed with 20,000 euros each year. So far we have made the following awards:

In 2020, **Galina Churkina**, a guest senior scientist at the Potsdam Institute for Climate Impact Research, received the first award. A high-profile jury chose the research paper 'Buildings as a global carbon sink', which illustrates the importance and feasibility of replacing cement, steel and other building materials with timber for mid-rise urban buildings to reduce greenhouse gas emissions from the construction industry.

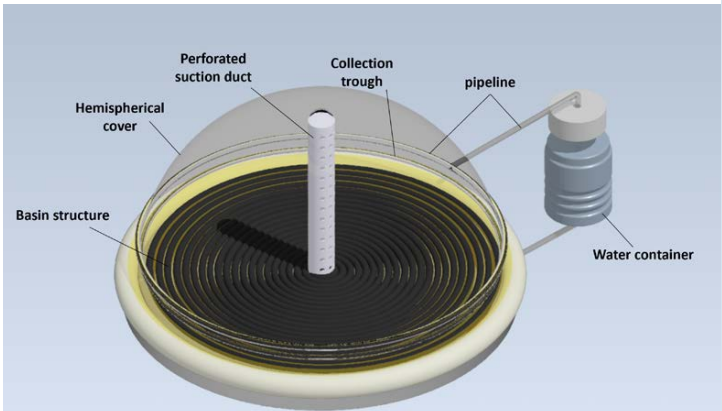
In 2021, **Ning Yan**, assistant professor at the Van 't Hoff Institute for Molecular Sciences at the University of Amsterdam, was awarded for his paper 'A membrane-free flow electrolyser operating at high current density using earth abundant catalysts for water splitting'.

The new approach makes it possible to cost-efficiently produce sustainable hydrogen. Green hydrogen is a key element for future energy storage and is also needed for the decarbonisation of energy-intensive industrial processes like steel and cement production.

In 2022, our panel of judges, comprising both internal and external experts, chose **Milad Mohsenzadeh** as the award winner. He is a recent PhD graduate from the University of Melbourne and is currently a postdoctoral research fellow at the University of New South Wales School of Photovoltaic and Renewable Energy Engineering. In his research paper, he developed a concept for the cost-effective desalination of water. His study stood out from many applications submitted by researchers worldwide.

Milad's winning idea meets all the essential criteria of the award: it is innovative, but at the same time practical and scalable, and its implementation could have a meaningful positive impact on an existing water shortage problem.





Schematic of the floating hemispherical Solar Still concept.  
Image: © Milad Mohsenzadeh



Image: © Sanghyun | adobestock.com

We are grateful to our 2022 external award judges:

- **Professor Hans Joachim Schellnhuber**, Director Emeritus at the Potsdam Institute for Climate Impact Research;
- **Professor Eicke R. Weber**, a former Director of the Fraunhofer Institute for Solar Energy Systems ISE;
- **Professor Yukari Takamura** from the University of Tokyo's Institute for Future Initiatives;
- **Professor Armin Aberle**, CEO of the Solar Energy Research Institute of Singapore ('SERIS') at the National University of Singapore; and
- **Professor Claudia Kemfert**, Head of the Department for Energy, Transportation and Environment at the German Institute of Economic Research ('DIW') and Professor of Energy Economics and Energy Policy at the Leuphana University Lüneburg

For more information about the Aquila Capital Transformation Award and a webcast with Milad Mohsenzadeh, *please follow this link*.

## AQUILA GROUP TRANSFORMATION AWARD 3: COST-EFFECTIVE WATER DESALINATION

### The challenge

Particularly in remote areas, access to electricity is limited. Moreover, such areas are often characterised by a low population density combined with challenging economic circumstances. As a result, they have limited access to the complex technology systems commonly used in water desalination. Additionally, and perhaps more importantly, they are prone to natural disasters. Flooding is common and sometimes lasts for many weeks, which severely challenges access to clean drinking water. In these cases, the only way to equip the population with fresh water is by transporting bottles – which sometimes takes days.

### The solution

In his award-winning research paper, Milad Mohsenzadeh proposes a floating and self-cleaning solar thermal desalination technology. It can be efficiently expanded over water surfaces in a short time frame and does not require a water pump. Depending on the number of households in the region, multiple units can be connected to achieve the desired output to meet the local demand for water. The design has the potential to self-clean the system from accumulated salt residues and significantly reduce maintenance costs and periodic cleaning. Other important advantages are that, due to the system's design simplicity and the application of abundant and affordable materials, it can be locally manufactured without strong supply chain dependencies, eliminating the need for precleaning and maintenance during its operation. This significantly improves deployment opportunities.

### Technical specifications

In this research, a novel floating salt-rejecting solar still with a low vacuum condition in the evaporation chamber was developed and tested. The design uses solar heat localisation for interfacial evaporation and capillary water circulation to improve the evaporation rate and prevent the basin surface from residual salt accumulation. The basin structure is composed of a hydrophilic porous membrane for improved capillary water supply. The solar still consists of external condensing coils coupled with the basin structure. It completely submerges into the water while the solar still is floating in the saline water reservoir. This enables the natural cooling of the condensing coils, which increases the condensation rate. A low-cost hemispherical clear acrylic cover is used to capture the solar radiation from all directions on the basin.

The system performance was examined under different scenarios and was found to generate distilled water at a daily rate of  $4.3 \text{ L m}^{-2} \text{ d}^{-1}$  with a distillation efficiency of 35% during summer in Melbourne, Australia. The life cycle cost per litre of drinking water generated by the solar still is calculated at  $4.7 \text{ US ¢ L}^{-1}$ , which is substantially lower than conventional solar stills. This system is expected to have a lower maintenance cost as it does not require as much periodic cleaning. Therefore, the new system is a feasible alternative to address the water security challenge for water-stressed communities in remote or disaster-stricken areas.

### Knowledge sharing

To support innovation, we not only foster research but also share our knowledge, and regularly publish white papers related to our activities. They give an overview of different scenarios for possible future market developments, provide a perspective on what might be coming up for investors and present more insight into our investment strategies.

In 2022 we published three white papers, focusing on the future of hydrogen as a renewable energy source, possible investment opportunities in Spain's residential real estate market, and the use of timber to decarbonise the construction industry. *You can read them all in full here.*

In addition, the organisation Pensions for Purpose nominated a white paper we published the year before on the potential of renewable energy investments as an inflation hedge for their Annual Stakeholder & Awards Event 2022. The highly respected experts on impact investing honoured the white paper as an outstanding study in the category 'Best Client-Led Innovation'.

## STUDY OF RENEWABLE POWER SOVEREIGNTY

Renewable energy is vital to prevent climate change, but it is also a major factor in determining power sovereignty, i.e., a nation's ability to control its energy supply and production without having to depend on foreign sources or being subject to geopolitical forces that can influence the availability and price of energy.

In this context, we commissioned a study in 2022 entitled 'European Power Sovereignty through Renewables by 2030', which has been led by researchers from the Potsdam Institute for Climate Impact Research.

With this study – the results of which are expected to be published in the first half of 2023 – we want to help policy makers, consumers and other stakeholders to understand renewables as a solution for an integrated and sovereign Europe. As with all our publications, the aim is to engage as many people and organisations as possible in debate and well-informed thinking about renewables, to help contribute to addressing the challenges of energy transformation.

Our Co-Founder and CEO, Roman Rosslenbroich, also publishes opinion papers and articles on a regular basis, sharing his expertise in renewable energy development, financing, management and operations, as well as his knowledge of current economic and political developments.

These publications contribute to the debate around renewable energy, the decarbonisation of the economy and the policies needed to support it. They spotlight current issues such as inflation or a possible windfall tax on energy companies and put them into a wider macroeconomic perspective. They also put forward suggestions for improving renewable energy policies, with the aim of effectively combatting climate change.

One of the opinion papers Roman published in 2022 discusses whether CO<sub>2</sub> compensation is greenwashing, while another looks at the bureaucratic challenges of the European electricity market. The question of how renewables can fight inflation is the topic of a third article, and the fourth focuses on Germany's renewables sector. *You can read them all here.*



## INTERNAL INNOVATION

We are always working to find or create innovation in our own processes, and this is led by our innovation LAB ('iLAB') team.

iLAB comprises colleagues from different parts of the company – a factor that delivers the diversity of perspective that is so vital for effective innovation. It is a platform for exploring and developing internal ideas and challenges, for discussion of current and emerging trends, and for engaging with external innovation experts and solutions.

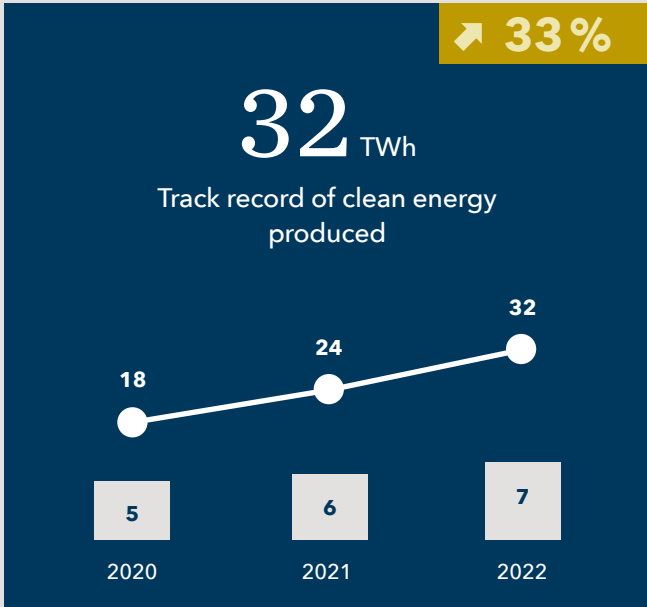
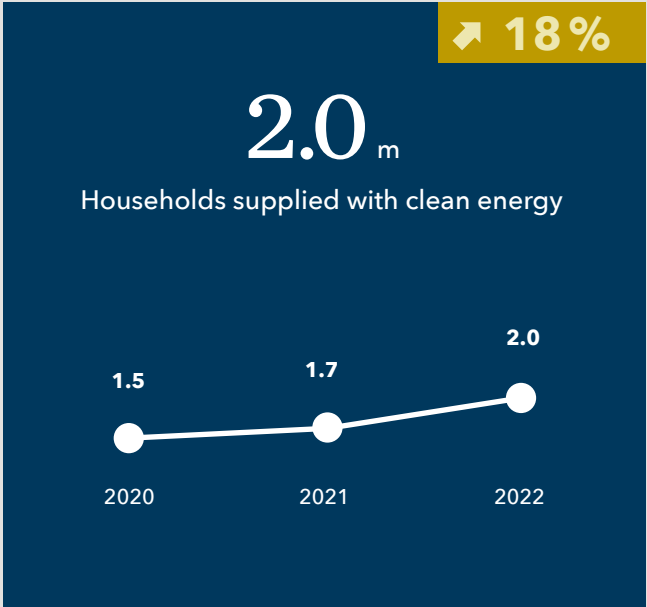
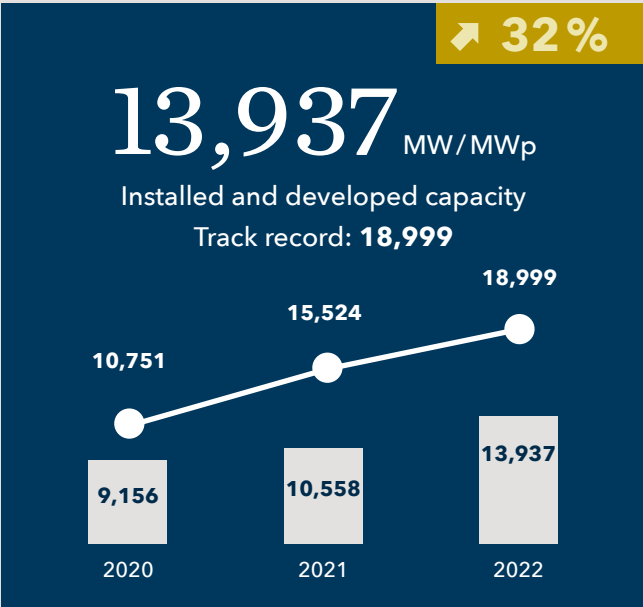


Image: © KenCanning | istockphoto.com



Driving the energy transition in Europe and Asia Pacific

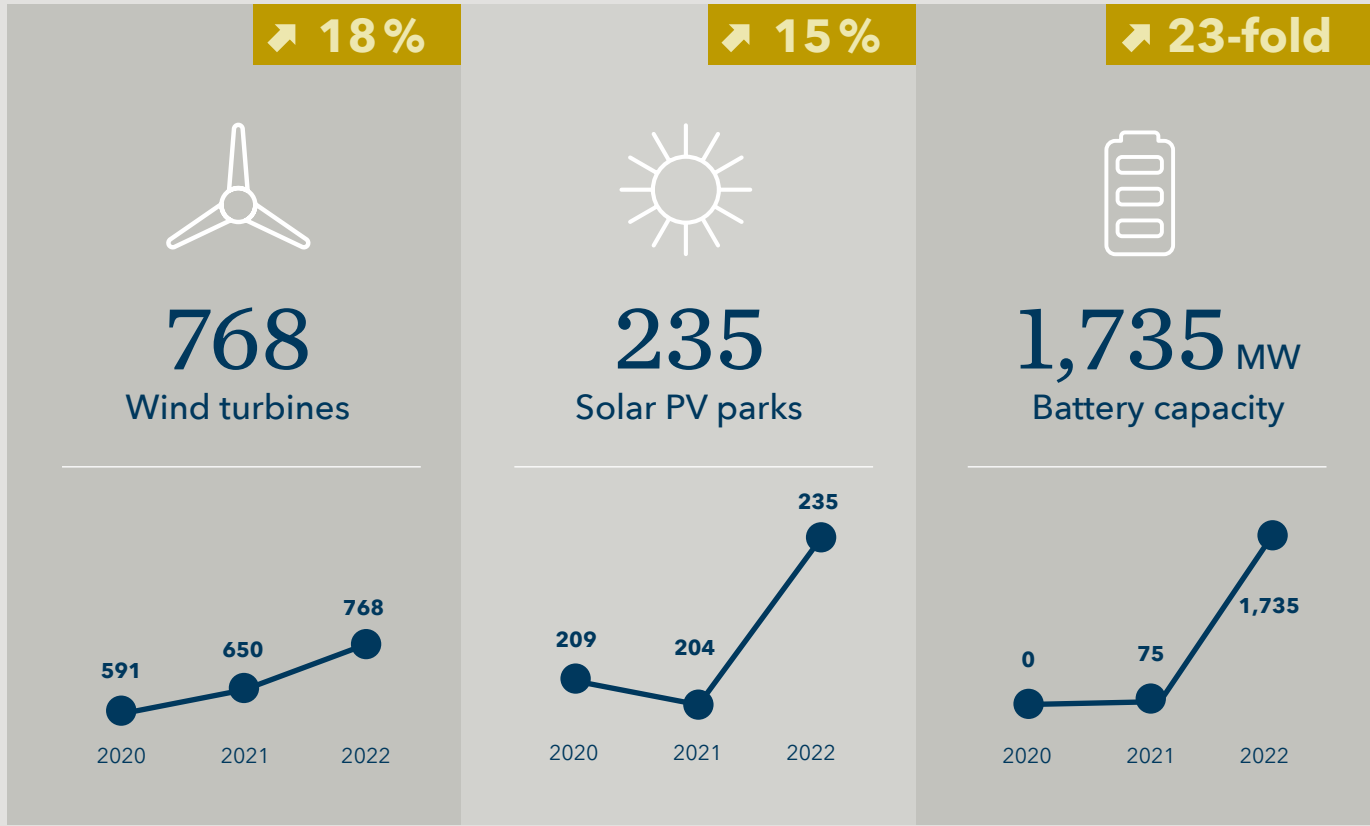
# 05 DEVELOPING, CONSTRUCTING AND OPERATING ESSENTIAL ASSETS



**Aquila Clean Energy EMEA (ACE EMEA)** is our clean energy business in Europe focused on advancing the energy transition by developing, managing and owning clean energy as-sets. ACE EMEA aims to become one of the industry’s most value-creating deployers of capital in the green transformation, with a focus on three areas: solar PV, onshore wind and battery storage technologies.

**Aquila Clean Energy APAC (ACE APAC)** is our clean energy business in Asia Pacific. Since launching ACE APAC in 2020, we have acquired more than 600 MW of projects and our vision is to build one of the leading clean energy portfolios in the Asia Pacific region.

Together ACE EMEA and ACE APAC businesses are driving the world’s energy transition as a renewable asset investor, developer and manager with the combined achievements as follows:







Spearheading the global energy transition as a renewable asset investor, developer and independent power producer

# 5.1 AQUILA CLEAN ENERGY EMEA

As we have already outlined in our commitment, we are focused on advancing the energy transition by developing, managing and owning clean energy assets.

Aquila Clean Energy EMEA (ACE EMEA) is our Europe-focused clean energy business that combines the technical expertise needed to develop projects with the financial capabilities to structure capital and manage merchant risk. Our ambition is to become one of the industry’s most value-creating deployers of capital into the green transformation, with a focus in three areas: solar PV, onshore wind and battery storage technologies.

The energy transition requires a diversified clean energy portfolio and a stable grid. Growing from our roots as an investment manager into an independent power producer, we have developed the in-house resources to de-risk early-stage clean energy projects, with a strategic focus on solar PV, onshore wind, and battery storage across our core European markets.

At ACE EMEA we have our own teams of experts in addition to those within the wider Aquila Group, working to create additional value by applying a holistic and industrial approach to both our greenfield and brownfield projects.<sup>10</sup>

Starting with project development, we pursue a local approach, implementing a stakeholder engagement plan as part of our strategy – from initial idea through to implementation. (To learn more about how we are supporting our communities, see section 6.0., page 45)

Once the building work gets under way, construction management is essential to ensure our projects are completed on time and to high quality standards. This involves a range of activities, such as reviewing and analysing engineering plans, developing execution plans and determining the materials required for construction.

Our Markets Management Group (‘MMG’) team plays an important role in tackling the growing complexity around energy market volatility by strategically managing commodity and electricity prices, interest rates and currencies. They use their knowledge of regulatory changes and the merchant risk of electricity prices

to facilitate proactive hedging procedures, giving us the flexibility to react to changes in market conditions. The team consists of experts in the sourcing and structuring of power purchase agreements (‘PPAs’)<sup>11</sup> and evaluating electricity markets. To get optimised project outcomes, we also leverage our purchasing power in supplier contract negotiations, allowing us to secure better deals for the materials and services required. To ensure compliance with regulatory guidelines, we monitor the quality and execution of the installation on an ongoing basis.

After construction is completed, it is important that we manage our assets effectively once operational. Applying a long-term ownership approach, we manage them in-house, drawing on our understanding of each asset’s specifications and requirements, and the knowledge and skills we acquired during the development and construction phases. In addition, we monitor and analyse asset performance, to identify opportunities for improvement and take action to optimise performance.

## THE VALUE OF BATTERY STORAGE

Transitioning to a Net Zero future is not going to be easy, and the build-out of renewables at scale comes with the challenge of fluctuating energy production. Battery energy storage systems can address this challenge by storing surplus electricity for the periods when wind and solar energy are not available. They help to provide a flexibility of supply that is vital for increasing the integration of renewables within a sustainable energy market.

10 Greenfield projects refer to areas that have never been built on before. In contrast, brownfield projects are those in areas that have previously been built on.  
11 A power purchase agreement (PPA) refers to a long-term electricity supply agreement between a power producer and an electricity consumer. It defines the conditions of the agreement, such as the amount of electricity to be supplied, negotiated price and penalties for non-compliance. PPAs can be used to reduce market price risks, which is why they are frequently implemented by large electricity consumers.



In terms of structuring, the financial capabilities across the Aquila Group allow us to structure capital to support the long-term growth of our business and give investors and financiers access to a diversified portfolio of clean energy assets.

At the same time, our in-house sustainability experts ensure that we set and maintain certain standards in our activities. We carefully consider which assets we develop and use a robust ESG risk assessment process throughout the entire value chain of our projects. (To learn more about how we manage ESG in our value chain, see section 5.4., page 40)

2022 in review

Despite the challenging market conditions, we completed new acquisitions with capacity of more than 2.5 GW, including entry into a new market through our onshore wind asset in Romania. And with the acquisition of battery storage systems and development projects, we diversified our portfolio across different technologies – solar PV, wind farms and battery storage.

Our advances in project activity included a variety of greenfield development initiatives, which have the benefit of creating more value for our investors. Numerous projects in our development portfolio reached the ready-to-build stage and two are now in construction.

Photovoltaic Plant, located in Jaén, Spain.

SUSTAINABILITY STANDARDS

*We carefully consider which assets we develop and use a robust ESG risk assessment process throughout the entire value chain of our projects.*



“This transaction for our Iberian project pipeline constitutes the largest financing in the history of Aquila Clean Energy, as well as the Aquila Group. We are pleased to have received the IJGlobal Award for the best renewable energy solar deal in Europe for this unique construction. The transaction supports strong growth for ACE EMEA in clean energy projects and our commitment to the energy transition in Europe.”

Susanne Wermter  
CEO Aquila Clean Energy EMEA

PROJECT ATLAS

In 2023, ACE EMEA won the IJGlobal Award, in the ‘Renewable energy solar deal of the year – Europe’ category, for a finance deal completed in 2022, worth 1 bn euros, to support the development and construction of more than 50 renewable energy projects in Spain and Portugal. This recognition as the best-in-class transaction in the international infrastructure and energy sector came at an event hosted by IJGlobal, a well-respected provider of market intelligence for project and infrastructure finance.

The loan, completed in September 2022, will help to produce a total clean energy capacity of 2.6 GW over a three-year period. The largest financing project in our history, it was put together using the ATLAS revolving credit facility.

This landmark transaction will significantly increase the renewable energy generation capacity on the Iberian Peninsula, contributing to the objectives of the European Green Deal. It will also support economic development in the regions where we are developing our projects.

The deal broke new ground, with the European Investment Bank acting as a short-term lender for the first time, and with an EU budget guarantee under the InvestEU programme allowing it to increase its risk-taking capacity. This enabled the bank to contribute a loan of 400m euros, with the remaining 600m euros coming from a consortium of seven commercial banks. The debt was significantly oversubscribed, confirming lenders’ strong interest in the financing.

Despite the introduction of electricity price caps on merchant revenues in the second half of 2022 in Spain, the MMG team secured attractive PPAs for a variety of solar PV assets, which will give the projects more predictable future revenue. As a result of their work, we were able to sign 300 MW in total PPAs.

2022 was an important milestone for our portfolio financing efforts. The successful signing of our first accession agreement under the ATLAS revolving credit facility marked the biggest financing project in our history – a loan structure to support a multi-gigawatt renewable energy project on the Iberian Peninsula.

In the future we plan to focus on optimising the structures and financing mechanisms for the capital-intensive projects in our pipeline, especially given the headwinds from existing product funding, which is being challenged by rising interest rates. While a lot of work has been put into the capital structure, debt financing

will be one of the workstreams we prioritise in 2023 and beyond. Additionally, the development timelines of our assets need to be harmonised with capital-intensive procurement decisions to secure interest payments and ensure proper liquidity management.

To maximise the positive and minimise the negative impacts of our projects on local communities, we plan to continue to advance and learn from the best practices created for our EcoSolar approach, which were specifically developed to address the impacts associated with the construction of a large solar PV park in Portugal. (To learn more about this, see section 6.0., Page 48)

Additionally, we plan to establish training programmes to further improve the project management skills of all our employees, with the aim of enhancing data quality and data sharing within our teams.





Building one of the leading clean energy portfolios in the region

# 5.2 AQUILA CLEAN ENERGY APAC

Aquila Clean Energy APAC (ACE APAC) is our clean energy business in the Asia Pacific region. We are funding, developing, building and operating assets connected to solar PV, onshore wind and battery storage. Our key target markets are Australia, New Zealand, Taiwan, South Korea and Japan.

Since launching ACE APAC in 2020, we have acquired more than 600MW of projects and our vision is to build one of the leading clean energy portfolios in the region.

In 2022, political opinion in Asia Pacific was very much in favour of supporting measures to fight climate change, leading to new or revised government policies to encourage renewable energy sources and commitments to various Net Zero pathways. The Labor government in Australia, for example, passed a climate change bill, enshrining emission reduction targets in law and putting the country on the path to Net Zero emissions.

## 2022 in review

We were able to acquire a double-digit number of clean energy development assets in Australia, New Zealand, Taiwan and Japan, covering technologies such as solar PV, wind energy and battery storage. (For more information on battery storage, please see section 5.1, page 31 of this report).

After some initial wins, it was important to set the basis for future growth and scale in the region. This included, but was not limited to, growing our corporate functions by adding additional investment management and asset management expertise. We revisited and evaluated our stakeholder plans, mapping them to our regional needs, to set the foundation for the APAC-specific ESG process map.

Our team more than doubled in size during the year. New recruits included a seasoned industry veteran to lead our business in South Korea, an expert in battery storage, and a sustainability manager to provide strategic oversight and in-house expertise regarding environmental and social matters. To effectively manage corporate affairs, we expanded our finance, HR, legal and communications functions.

Additionally, we implemented rigorous vetting procedures for deal origination, due diligence and investment opportunities, to make the best use of our resources and increase the chances of projects we pursue reaching financial close.

In 2022 we received Overseas Investment Office (“OIO”) approval in New Zealand, becoming the first overseas investor for a utility-scale clean energy project. The approval from the OIO, which required extensive collaboration across teams, both internally and externally, was a good litmus test of what we can achieve in ACE APAC.

And in our community work, our employees volunteered their time to help at several not-for-profit organisations in Singapore. (To learn more about how we support our communities, see section 6.0., page 45)

Some headwinds we tackled included the fact that APAC does not have a single, overarching regulatory environment and that universally accepted regulations stipulating the environmental and social safeguard measures for clean energy projects do not exist across jurisdictions within the APAC region. In addition to lacking a uniform framework like that of the European Union, some APAC countries set their own Net Zero pathways, leading to less than transparent regulatory environments and permitting processes.

In addition, we continuously need to work hard to find and retain the best talent, as we operate in an industry that is still relatively new, where businesses are competing for employees with skills that are in short supply.

Our offices in Asia Pacific grew to five during the year, with bases opening in Taiwan, South Korea and Japan adding to those already existing in Singapore and New Zealand.



“It’s an exciting time to be part of the clean energy industry in Asia Pacific, with governments and businesses alike investing in a cleaner future.”

Alexander Lenz  
CEO Aquila Clean Energy APAC

## Future developments

To match local context and local needs, we plan to roll out our APAC-specific ESG process map for project origination and due diligence. This will be one process, but specified at a national level, as each country has its own diverse challenges.

In terms of specific projects, we have secured the land, permits and other required consents for one of New Zealand’s largest utility-scale solar PV portfolios to date, which we will continue to develop, along with the construction of other key projects across the region that should begin in 2023. Now that we have a better grasp of the local permitting landscape and approvals processes, we intend to apply the lessons learned to our future clean energy projects.

Our overarching aim is to replicate the success of ACE EMEA and mirror its clean energy generation capacity across Asia Pacific.





Rendering of our Green Logistics Park, currently under construction and located in Alcalá de Guadaira, in the province of Sevilla, Spain.

An attractive investment case for decades to come

# 5.3 AQUILA SUSTAINABLE INFRASTRUCTURE

Aquila Sustainable Infrastructure (ASI) has been investing in diversified infrastructure assets since 2012. Our journey began in Europe, with western and southern Europe as the main regions of focus.

Investments in infrastructure assets are appealing to clients as they offer attractive risk-adjusted returns due to their low correlation to traditional asset classes and a stable, consistent cash flow profile.

In ASI we are focused on two main areas: Green Logistics and Data Centres, each with unique capabilities in sustainability combined under one unit.

## Green Logistics

Rapidly expanding trade and the consumer shift to e-commerce is creating a huge increase in demand for modern and large-scale storage space for goods, which translates into opportunities for investment. We started our logistics business in Germany in 2012 with the acquisition of several institutional assets in key locations. Our dedicated team of investment professionals has gathered significant experience in this space over the years and has worked on acquisitions valued at more than 1 bn euros, both in the development and rental properties markets. We also believe in the importance of local teams who handle our projects in-house and who significantly add to the success of our business.



Markus Holzer  
Co-CEO Aquila Sustainable Infrastructure



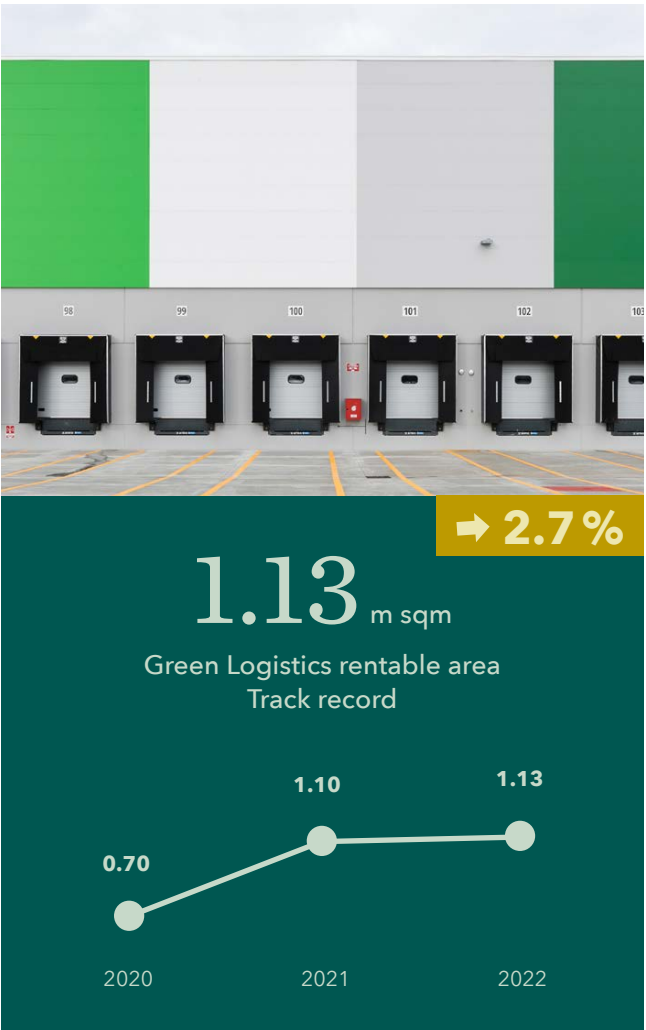
Rolf Zarnekow  
Co-CEO Aquila Sustainable Infrastructure

From the outset, we focused on projects that create sustainable value in the long term. Over the years we have developed a comprehensive Green Logistics Concept that is based on three key principles:

- **Carbon reduction:** Our main goal is to cut CO<sub>2</sub>e emissions as much as possible. We differentiate between (a) the embodied footprint generated during the manufacturing, transport, construction, and decommissioning stages of our assets and (b) the operational footprint where energy efficiency measures and the use of renewable energy sources can reduce overall consumption.
- **Sustainability certifications:** Certification to Very Good or Excellent rating by international standards, such as BREEAM, is a must-have for all green logistics assets.
- **Renewable energy:** Rooftop solar photovoltaic (solar PV) panels reduce energy consumption and help our clients create long-term value. In addition to the benefit of avoiding carbon being released into the atmosphere, these panels provide cost savings by reducing the energy needed to maintain interior temperature conditions.

Through ASI we have a track record of investing in green logistics assets of more than 1.13m sqm of total lettable area, with the aim of reducing the environmental impact of these traditionally carbon-intensive assets while providing attractive financial returns to our clients. We now have a significant number of so-called ‘big box’ logistics warehouses, with a clear focus on sustainability and operational excellence. This work supports a variety of Sustainable Development Goals (‘SDGs’) such as ‘climate action’ (SDG 13), ‘affordable and clean energy’ (SDG 7), ‘infrastructure and innovation’ (SDG 9), and ‘sustainable cities and communities’ (SDG 11).

To expand our investment activities, we are looking to extend our current logistics portfolio by acquiring additional plots in 2023, and we envisage further growth by expanding into new countries in Europe.







Aerial view of the Green Logistics Park Illescas, in the province of Toledo, Spain.

**SPOTLIGHT:  
ILLESCAS GREEN LOGISTICS PARK**

In 2022 we delivered the first of six plots of the Illescas Green Logistics Park in Toledo province, Spain, within the broader area of Plataforma Central Iberum. As Spain's first eco-industrial park, integrated into its surroundings, the facility is designed to save energy and make maximum use of new sustainability technologies. Located just 36km from Madrid's city centre, the site will serve as a strategic logistics hub for regional, national and Europe-wide distribution and is of strategic importance for the tenant.

This logistics complex will develop projects designed to achieve maximum efficiency, with strong growth potential and a fully customisable set of specifications and layout to meet individual client needs. It is comprised of six plots of land with a total area of 472,877 sqm and the first building received the BREEAM Excellent rating.

The tenant of this complex made a significant additional investment with the installation of a 22,000 sqm temperature-controlled warehouse. The increased electricity needs are supported by the installation of rooftop solar PV panels, which produced 1.5 GWh in 2022, starting in April.

The project has a Net Zero goal and all embodied carbon emissions - more than 17,521 tonnes of CO<sub>2</sub>e from the manufacturing, production, and construction phases - were offset according to a verified gold standard certificate.

**Data Centres**

It is estimated that the amount of data created worldwide will increase more than fivefold by 2025, compared with 2018 levels<sup>12</sup>, because of increased deployment of the Internet of Things, Artificial Intelligence and the general trend towards business digitalisation through cloud migration. The data centre industry driven by the megatrend of digitization.

AQ Compute, one of our sub-brand's, is dedicated to developing sustainable data centres integrated in a pan-European platform with the clear mission to avoid carbon emissions.

We build and invest in data centre assets and offer complex services to our clients, including some of the biggest cloud providers and most innovative global technology companies. Our dedicated Data Centre team includes professionals with significant experience in the industry.

Our data centre business model is based on four pillars:

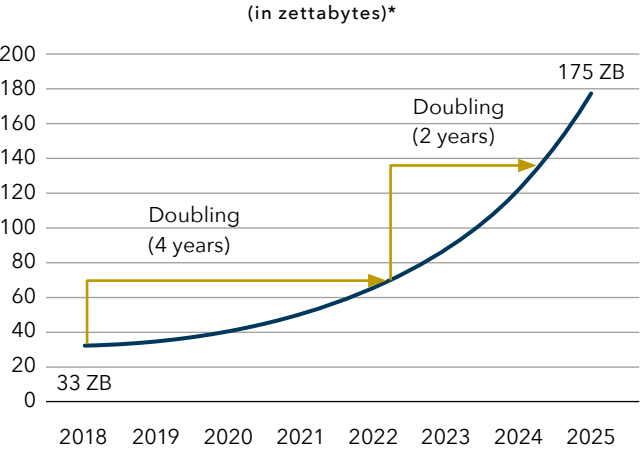
- **Co-location services:** The optionality to rent data centre capacity, including powered and refrigerated space and cooling infrastructure, while offering high uptime (the amount of time that a data centre's IT infrastructure is operational and available to users).

- **Built-to-suit:** The ability to customise spaces and buildings in a way that meets the individual needs and requirements of a particular client, which are typically very specific and hence require dedicated capabilities to accommodate them.
- **'Remote hands':** Technical support services offered to clients who are not physically located on site.
- **Other connectivity services,** such as special fibre connections within and outside of the data centre, are also part of the offering.

Our first two data centre projects in Norway and Spain and are under construction and development; they represent a total investment of more than 500m euros. The first modules in both assets are expected to be operational by 2024 and 2025 respectively. Both data centres will be supplied with 100 % clean energy while satisfying the needs of hyperscalers - large enterprises and other organisations that require extensive computing capacity.

In 2022, in addition to growing the team and recruiting professionals with sustainability expertise, we passed a very important milestone with the signing of the agreement to build our first Spanish data centre near Barcelona, which could become another flagship project combining our know-how in the areas of data centre technology and sustainability.

**GLOBAL DATA VOLUME**



\* International Data Corporation (IDC), "The Digitization of the World" (November, 2018), p.6. Available at: <https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>

**'NET ZERO' DATA CENTRES**

We aim to offer our clients 'Net Zero' data centres based on the following three pillars:

- Electricity supply from renewable energy sources - managed by Aquila Clean Energy whenever possible.
- Design and construction based on credible sustainability building standards.
- Operation and cooling with energy-efficient technologies, data centre waste heat recovery.



12 International Data Corporation (IDC), "The Digitization of the World" (November, 2018), p.3. Available at: <https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>



Structured within our investment approach

# 5.4 HOW WE MANAGE ESG IN OUR VALUE CHAIN

Our commitment to ESG and sustainability goes beyond developing clean energy and climate change mitigation solutions: it is an integral part of our investment strategies and processes and the end-to-end management of our assets.

We are convinced that we are more effective in managing ESG factors when they are embedded in the core processes across the value chain and considered in the key decisions of the investment

cycle, with all relevant functions and responsibilities clearly defined and supported by an effective governance framework.



## Our approach

We have established a robust ESG integration process that is formalised in our ESG Integration Policy. The guiding principle is the ‘double materiality’ of ESG factors. This means that we recognise that ESG factors can have a material impact on the financial performance and risks of an asset – otherwise referred to an ‘outside-in’ perspective. However, we are also committed to considering the impact of our actions on the environment and society, which constitutes the ‘inside-out’ perspective.

All key decisions made across our investment process require the evaluation and management of ESG criteria. All assets are subject to ongoing monitoring of ESG factors until they are divested, starting with the sourcing or screening of assets and continuing in the due diligence process leading to an investment decision as well as during operational management.

## Sourcing

We are constantly seeking new sustainability opportunities, particularly regarding new technologies and solutions to combat climate change and/or in support of the energy transition. When exploring new business opportunities as part of a New Product Process, ESG opportunities and risks are assessed along with the product’s additional potential risks to create the investment case. As such, ESG factors are considered in the final decision on whether to proceed with the new business opportunity.

## Investment due diligence

We have developed a proprietary ESG risk assessment process based on industry frameworks, expert guidance and our own sector experience and knowledge. It applies the concept of double materiality and formalises our ESG risk analysis by asset class and project development stage.

Further steps, including defining appropriate mitigation measures, budget, and potential modelling adjustments, are based on the ESG risk profile, and considered as part of the final investment decision.

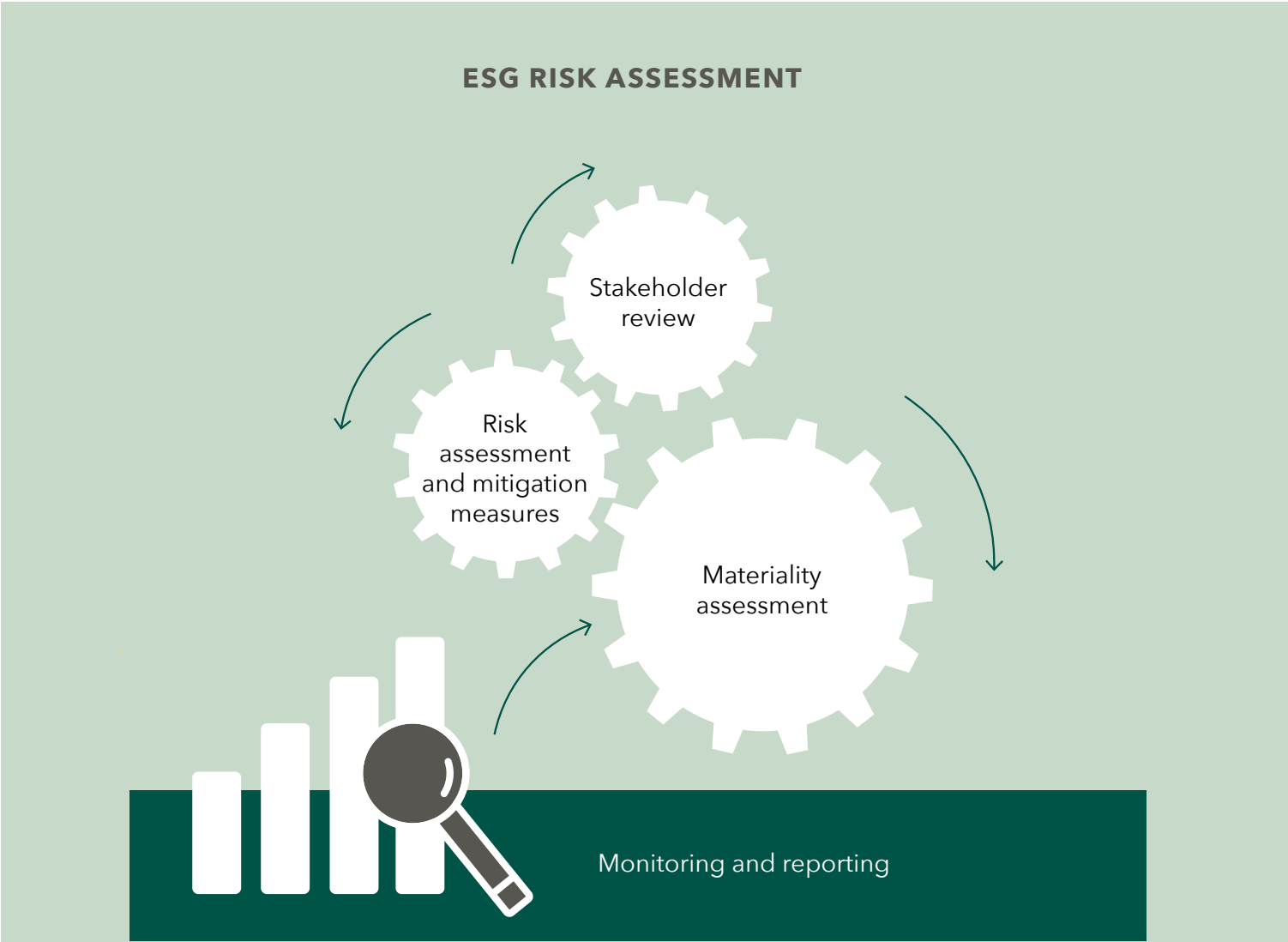
During the assessment process, multiple subject matter experts are involved, including our internal ESG experts. In addition, we leverage relevant additional expertise during key stages of the development, construction and operation of essential assets to ensure the quality of our ESG risk assessment process.

## Investment decisions

Internal guidelines require the completion of an ESG risk assessment before an investment decision can be made. Key findings are discussed by the Investment Committee and the final decision can only proceed if the ESG risks are deemed acceptable. Depending on ESG risk profile, an investment proposal needs to include effective mitigation measures.

## Monitoring and reporting

ESG risks are monitored throughout the lifetime of an investment and significant changes in risk profile are escalated as appropriate. As transparency with our investors is an important part of our fiduciary duty, sustainability-related matters are part of our ongoing reporting.







Transportation of wind turbine parts to the Øyfjellet Wind Park in Vefsn municipality, Northern Norway.

Implementing sustainable procurement practices

# 5.5 OUR SUPPLY CHAIN

Since the pandemic, several risk factors have impacted our supply chain. These risks include disruptions caused by supplier concentration, price fluctuations due to scarcity of a product or service, unpredictable costs and a lack of transparency in the supply chain.

Certain commodities – including polysilicon, lithium, copper and rare-earth elements – that are critical to producing components such as solar PV modules, wind turbines and battery energy storage systems face a high supply disruption risk, which can significantly impact the investment case.

Our recently enhanced procurement strategy addresses these risks to enhance supply chain resilience and transparency. It was created alongside a group-wide function that consolidated several functions that were previously conducting procurement-related activities separately.

Our procurement strategy tackles four key challenges in supply chains:

- Supply security;
- Cost predictability;
- Product roadmap alignment;
- Sustainable procurement.

The group-wide procurement operational model and strategy is geared towards ‘procurement with a purpose’ to help protect the planet by influencing the behaviour of suppliers and contractors. In other words, supplier selection is not only based on price or quality, but also on their willingness to adhere to ESG factors.

## 2022 in review

Our new procurement function is now comprised of specialised supplier-facing category teams for strategic sourcing and project-facing procurement teams. This model is geared towards implementing a swifter approach towards supply chain excellence. It emphasises consolidating demand, thereby reducing negotiation lead times, and achieving favourable volume rebates, supply security and business visibility. It also enables a consolidated approach to mapping ESG value chains across our global supplier base.

## GROUP PROCUREMENT STRATEGY



We leveraged supply market intelligence and forecast data analytics to guide our procurement and risk strategies, mapping supply chain transformations and associated ESG impacts to build resilience. This enabled a few achievements in terms of optimising contract volume coverage and duration, and risk mitigation, as well as capturing spot-buying opportunities.

Additionally, we used global frameworks (i.e., a list of pre-approved suppliers) and pursued long-term category partnerships to ensure supply security, manage commodity price risk and establish high-quality execution. The creation of framework supply agreements allowed us to access pre-qualified suppliers with pre-negotiated key commercial terms in global supply chains on demand and without the need for further requests for quotation (RFQs) – thus reducing cost.





“By participating in the Solar Stewardship Initiative, Aquila Group is helping to set new standards for the solar PV industry”

Ozer Ergul  
Group Head of Procurement

THE SOLAR STEWARDSHIP INITIATIVE

In 2022 we became a member of SolarPower Europe (‘SPE’), along with other key stakeholders in the solar value chain, from polysilicon producers to independent power producers.

SPE is one of the bodies behind the Solar Stewardship Initiative (‘SSI’), which aims to develop supply chain transparency and strengthen confidence in how, where and by whom solar products and components are manufactured. It will also work to create standards and establish verifiable information sources for ESG performance in the solar PV supply chain.

Ozer Ergul, our Group Head of Procurement, led SPE’s supply chain sustainability workstream and spearheaded our sponsorship of the SSI. He says: “By participating in the Solar Stewardship Initiative, Aquila Group is helping to set new standards for the solar PV industry.”



Photovoltaic plant Tiza, located near Almería, Andalucía (southern Spain) within the Tabernas desert

We used collaborative platforms for the digital transformation of processes such as demand consolidation, project overviews, supplier pre-qualification, supplier onboarding, auctions and RFQs, rapid cost estimations, and project management tasks. These enabled us to streamline internal as well as external processes to enhance our operational performance.

In addition, in 2022 we created a new code of conduct for suppliers containing robust guidelines on health, safety and the environment, as well as requiring supplier commitments for sustainable sourcing.

Future developments

As part of our goal of selecting suppliers and products based not only on cost or price, but also on their ESG impact, we aim to have ISO 20400 accreditation for sustainable procurement within all our supply chains by 2024.

To encourage suppliers to measure up to our expectations, we will encourage third-party certification and pre-qualification. In addition, supplier and contract management processes will be standardised and digitalised to improve the efficiency and effectiveness of our procurement teams. This will also ensure smooth information exchange and transparency for suppliers and other key stakeholders within the organisation.

Going forward, our procurement operating model will continue to align processes to increase accountability of all relevant stakeholders and focus on enhancing supply chain resilience and transparency. We will also focus on project procurement, to service our project pipeline procurement requirements and to ensure on-time delivery and execution excellence.

A tailored approach to address local needs

6.0 SUPPORTING OUR COMMUNITIES

By 2030, we aim to be recognised as an industry leader in the work we do to support the community. This is one of the four ambitions that are part of our mission.

This means engaging with communities in the areas where we develop, build and operate essential assets, but also in the areas where we have offices, and societies in need beyond our local presence.

Overall, in 2022 we made good progress in supporting our communities and we will endeavour to do even more in the years to come.

Stakeholder engagement within our communities

As the world transitions to a more sustainable future, renewable energy projects have become increasingly important in reducing greenhouse gas emissions and combating climate change. However, these projects can also present challenges for local communities and biodiversity.

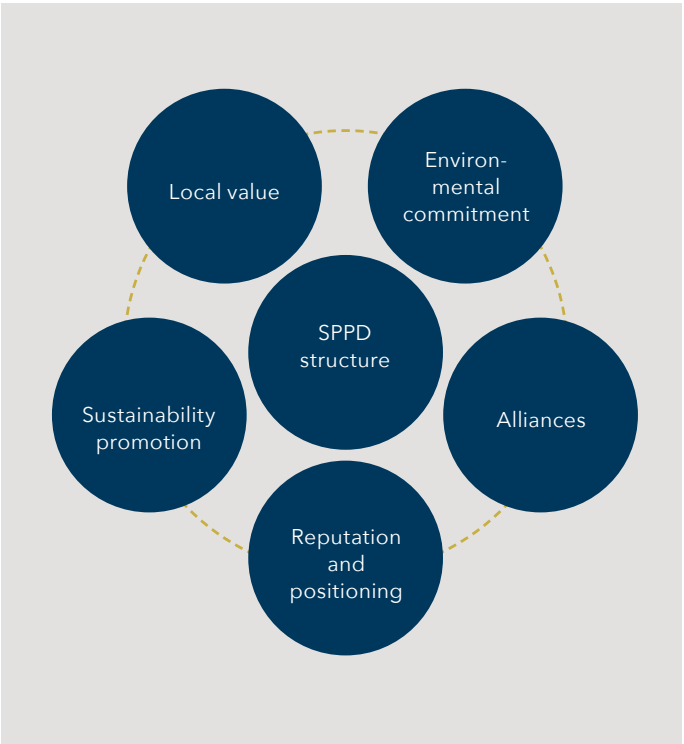
From a social perspective, local stakeholders often have questions about the proximity, size and appearance of projects, and about how they will impact their community and society at large.

With the demand for renewable energy continuing to grow, it is important to consider the potential effects of renewable energy development, as it can conflict with biodiversity conservation and other land uses. Balancing the benefits of renewable energy with the need to protect communities and the natural world is a critical challenge for the sector.

A key process regarding community work in clean energy operations is our Sustainability Plan for Project Delivery (‘SPPD’) (For more information, please refer to our 2021 ESG Report). Established in 2021, it has been successfully applied in Iberia and we now use it as a benchmark for the way we manage environmental and social risks across the entire continent.

The SPPD framework outlines the sustainability requirements for projects, beginning with the initial development phase and continuing throughout the whole lifecycle of a project. It emphasises the importance of managing sustainability risks and opportunities at project level and provides processes and tools to address local stakeholder needs and environmental issues.

This approach ensures that projects are carried out in a sustainable manner, considering the varying needs of stakeholders and potential environmental impacts throughout the project lifecycle. It sets out the minimum sustainability requirements that are considered to be mandatory for all projects and is divided into five main areas:







One of the wind turbines, belonging to the øyfjellet wind park

AN EXAMPLE FROM NORTHERN EUROPE: ENGAGING WITH LOCAL STAKEHOLDERS

The Øyfjellet Wind Park (aka the Rock) in Norway began in 2011 as a project that was firmly rooted in the local community. From the beginning, we understood that it was important to recognise and value the heritage of the local Sami people and the cultural and economic importance of reindeer husbandry to the Sami district. We acknowledge the potential impact of infrastructure projects, and as part of the licensing process, an inclusive stakeholder engagement process was conducted where individuals and organisations had the opportunity to provide their input. As a result of these consultations with the local community and the reindeer herders, several adaptations were made.

The Norwegian authorities granted a licence to build and operate the Rock and a permit to expropriate the necessary rights to realise the project. An appraisal court case to determine compensation for landowners and holders of easements subject to expropriation is already scheduled; the validity of the Rock's licences has been challenged by the local Sami reindeer herder district.

The reindeer herders argue, among other things, that the Rock blocks a reindeer herding migration route to one of several winter grazing areas, and that the licences are therefore invalid. The primary argument relates to an alleged breach of minorities' rights to enjoy their own culture pursuant to the International Covenant on Civil and Political Rights Article 27, which applies as Norwegian law. The reindeer herder district has also submitted several other arguments. The herders' arguments related to the validity of the Rock's licences are disputed by the licensee, Øyfjellet Wind AS. A previous interim claim by the district to stop the construction project, based on similar arguments, was denied by the courts in

2020 and 2021. The Norwegian Ministry of Petroleum and Energy assessed the licensing process in 2021 and did not find any circumstances that could lead to the licence being invalid.

Notwithstanding the dispute with the reindeer herders, value creation is a key societal consideration for the local municipality and the project is expected to contribute more than 3m euros annually in the form of property tax, income tax, land rental payments, local contracts, etc. In addition, we have committed to several measures that will benefit the local community. By completing the Helgeland steps and opening a new 72km road for hiking and cycling (along with public parking spaces and rest areas that are currently being built), we are providing public access to Øyfjellet - the mountain the project is named after. Although it is still in the planning phase, the use of all infrastructure created for the installation of a cable car to bring locals and tourists up the mountain will be granted to the municipality. In addition, an annual budget of more than 20,000 euros will be provided for onsite community activities, with details to be decided by the municipality.

Along with the direct benefits to the local community, there are also indirect benefits resulting from our relationship with aluminium producer Alcoa. It received a 15-year fixed price for electricity used by the aluminium smelter in Mosjøen, a key contributor to growth in the area. The competitive price is crucial, given that Alcoa had to curtail production (at its sites at Lista in Norway and Talum in Slovenia) or shut down smelters temporarily (at two sites in Spain) due to high energy prices. The Mosjøen smelter employs 550 people and has an annual capacity of 200,000 metric tonnes of aluminium. With the clean electricity provided by the project satisfying more than one third of the smelter's annual consumption, it benefits the local community through job creation and economic growth, as well as supporting a lower carbon footprint.



Virginia Agostinho  
Senior Project Development Manager | Aquila Clean Energy



Maria Ganado Arteaga  
Sustainability Manager | Aquila Clean Energy

Using our in-house expertise in ESG matters, as well as legal and tax issues, we conduct detailed analyses to assess the potential social impact of our clean energy projects.

We then engage with local stakeholders – a vital aspect of our approach to developing, building and operating our projects – and use their feedback to create a proposal that includes measures to maximise the social benefits while also keeping in mind our business goals. In this way, through constant dialogue and the establishment of relationships for the long term, we aim to find common ground for all project stakeholders.

The approach to create a plan that supports value creation for the local community in Øyfjellet replicates the steps taken for another wind farm in southwest Norway called Midtfjellet (aka Tesla). The Midtfjellet wind farm is now a popular destination for cycling, skiing, fishing and family trips. The turbines make the experience of visiting the area special and since 2011, approximately 17,000 people have been on a guided tour of the area.

MIDTFJELLET DAY

Every year we celebrate Midtfjellet Day, when people in south-west Norway gather together for an event that we organise in cooperation with the local Fitjar Sports Association. It features a range of cultural and sporting activities. We also donate approximately 35,000 euros each year to local groups including a school orchestra, kindergartens and senior centres. And to inspire future generations to protect our planet and explore renewable energy technologies, we have granted the local university access to our Midtfjellet wind farm for their scientific work.

Thanks to our strong partnerships with local organisations in Norway and our highly committed team, we received the Corporate Sustainability Award from the Renewables Norway Fornybar Norge association (formally known as the Norwegian Wind Energy Association NORWEA). Newly created in 2022, the award recognises a member that has excelled in positive community involvement, for example, through social or environmental sustainability.

In southern Europe, where our projects mostly involve solar PV, we also engage with local stakeholders and conduct social impact studies, to increase the benefits of these projects to local communities.

In 2022, examples of community activities included training for people aged over 45 to update their technology skills and improve their employability, and an environmental education event to help give young people a greater awareness of renewable energy. Another example was a workshop for secondary-school students focusing on the professional opportunities offered by renewable energies, and an awareness day spotlighting the types of jobs associated with photovoltaics, including a session on how to prepare a CV.

Community initiatives

We understand that local engagement is vital, but we also believe in supporting our communities by helping to address their specific needs and/or promoting societal developments beyond those places where we have our offices. In 2022, Aquila Group and our employees supported charities and people around the world with more than 250,000 euros in donations and aid.

Our community initiatives can take many forms, such as promoting awareness of the renewable energy sector, making donations, charity work or collaboration with local universities. By focusing on areas that align with our values and mission, we can have a positive impact on communities while contributing to the just transition to clean energy. Below we share just a few noteworthy examples among the many activities we organise.



AN EXAMPLE FROM SOUTHERN EUROPE: INDUSTRY BEST PRACTICE IN THE MAKING

In 2022 we announced our sustainable development approach, EcoSolar – a robust set of measures for dealing with the direct impacts of our solar PV assets. It aims to cover the full spectrum of community concerns, including renewable energy itself, stakeholder engagement, biodiversity, agricultural practices, equipment management and plant decommissioning.

Our EcoSolar approach will include a stakeholder engagement plan that focuses on a shared value strategy for local stakeholders, while our renewable energy concept will bring the community savings in electricity bills, the ability to contribute to decarbonisation and it will support the fight against energy poverty.

Regarding biodiversity, we created a partnership with the Faculty of Sciences at the University of Lisbon to carry out a study on the impacts of our solar PV park in Cercal. The study will help us to understand the real impact of a big scale PV Plant on local biodiversity, create tailored measures and subsequently decide what local initiatives might be needed to preserve local biodiversity and soil quality.

This work is a starting point in our efforts to develop an agrivoltaic strategy, combining agricultural practices with the production of electricity via solar PV. We will advance this work through a research and development agreement with the University of Évora to identify the best agricultural practices and species to cultivate between the solar PV panels and in the surrounding unused areas. This pilot study also involves the monitoring of soil properties, soil degradation and agrivoltaic measures to mitigate erosion.

EcoSolar will also offer a detailed decommissioning plan for solar assets. Included is a study for material lifecycle management and a circular economy assessment.

Our work to finalise our EcoSolar approach is already under way; an initial study on solar PV panel recycling has been completed and several others have been started. Additionally, we created a decommissioning plan for a solar PV park that can be applied to a project we are developing in Portugal.

Our EcoSolar approach reflects industry-wide best practices that will soon become commonplace in large-scale solar developments across Europe, and other parts of the world.



Blooming vegetation at solar PV plant near Crucey-Villages, France

Hamburg B2Run

After a two-year break because of COVID-19, Hamburg’s popular B2Run – which raises awareness and funds for bone marrow donations – returned, with 70 of our employees taking part in the event. Organised by health insurance company DAK, the race featured runners from 260 companies, who were aiming to reach the finish of the 5.6km route at the Volksparkstadion, home of football team Hamburger SV. B2Run was our first sports event since we launched our company internal employee engagement initiative, AQ Sports, and we are very happy that one of our teams managed to finish in fifth place – well done!

Help for Ukrainians

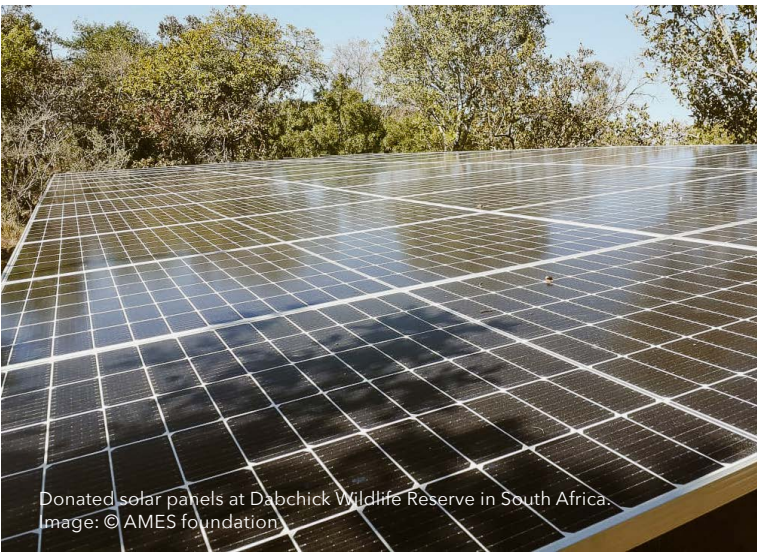
We partnered with Adina Apartments to offer safe accommodation in Hamburg, the location of our headquarters, to 20 Ukrainian families who had fled their homes after invasion by the Russian military. We also worked with Asklepios Hospitals to get much-needed essential supplies to Ukraine. Asklepios’ healthcare sector contacts and know-how, plus our donations, resulted in 23 pallets of bandages, medicine, blood pressure monitors, catheters and other items being transported to clinics all over the war-torn country. Starting in March 2022, all money spent in our merchandise store was donated to verified organisations supporting Ukraine.

Charity work in Singapore

In Singapore, where one of our offices in the APAC region is located, our employees volunteered to work with the Yong-En Care Centre to deliver food to underprivileged families and the elderly in Singapore. They also participated in Singapore’s Bloomberg Square Mile Relay in October in support of SportCares – an organisation that helps vulnerable and disabled people benefit from the experience of taking part in sport. Finally, we created a bespoke ‘Speak Up’ workshop as part of the United Women Singapore Girls Empowered Programme on Effective Communication and Negotiation for the Workplace, to be delivered in February and March 2023. The workshop was originally planned for November 2022 but was postponed.

Donation of PV panels

Founded in 2020, the AMES (Africa’s Most Endangered Species) Foundation is striving to stop the extinction of African wildlife. We took action to support this important work by donating solar panels for the Dabchick Wildlife Reserve, north-west of Johannesburg, South Africa. Thanks to our contribution, most of the reserve is now independent of the electricity grid, while a local company also benefits from the power generated by our panels.



Donated solar panels at Dabchick Wildlife Reserve in South Africa. Image: © AMES foundation

The way ahead

We are proud of the progress we have made in institutionalising our approach to engaging local communities and promoting sustainable development. We have seen at first hand the positive impact our efforts have had, and we are committed to continuing this work.

However, we also recognise that there is still much work to be done. For example, we are planning to extend the SPPD framework to other countries and asset classes in the future, ensuring that our approach is inclusive, equitable and effective.

Additionally, we aim to scale up our efforts regarding our support for communities and will explore new ways to collaborate with local partners and stakeholders to maximise our social impact and build a more sustainable future.

As renewable energy asset managers, we are committed to ongoing learning, growth and innovation. We will continue to push ourselves to do better, to achieve more and to create a brighter, more equitable future for all.





From talent development to how we manage our own operations

## 7.0 LEADING BY EXAMPLE

One of the four ambitions of our mission is to be an organisation that ‘leads by example’ in the way we manage ourselves. Whether through the work we do to support our employees to thrive and grow, or our efforts to manage the environmental footprint of our own operations, we need to have a sustainable approach. In other words, we need to think about the long term in the way we support our talent and manage our own operations.

### How we support our employees to thrive and grow

In an industry that is constantly evolving and facing new challenges, talent development is critical to ensuring our employees have the skills and knowledge to navigate this dynamic environment and to deliver value to clients. It's just as important to foster a culture of inclusion and have a workforce that reflects the diverse perspectives and experiences of our clients and stakeholders.

#### Talent development

We believe that support for continuous learning is indispensable. Therefore, we want our employees to experience personal growth, and we also know that their development contributes significantly to supporting the future success of our company. For all employees, we regularly offer learning and knowledge-sharing opportunities that are relevant to specific business topics or their general professional development.



“Our efforts to advance diversity and inclusion, talent development and the management of our environmental footprint are important topics for our employees. Our commitment to advance in these areas also makes good business sense and is work we plan to continue in the years to come.”

Marc Aurel Kaiser  
Group Head Human Resources & Organisation

#### Global e-learning platform

Since 2021, we have offered our employees high-quality, web-based training courses from different universities and companies through the well-known global e-learning provider Coursera. This means our people have access to customised and individualised content as part of market-trending solutions that offer the flexibility to learn anytime and anywhere – whatever suits them best. Online training also allows us to reduce our CO<sub>2</sub> footprint, as there is no need for travelling, or even a classroom.

Most importantly, we chose this state-of-the-art provider because we know that the talent, passion and hard work of our employees is the key to our success, and investing in digital learning can only further boost their skills and competences.

#### Language courses

Language skills are a fundamental aspect of good communication and play a crucial role in fostering understanding and collaboration between people from different cultural backgrounds. By providing language courses, we aim to break down language barriers and create a more inclusive work environment where everyone can communicate effectively and feel valued.

Furthermore, offering language courses promotes personal and professional development among employees, equipping them with valuable skills that can improve their job performance and

increase their career opportunities. It also helps to attract and retain diverse talent, which is crucial for the long-term success of our business.

We provide business-relevant language courses for all employees, and they are designed to be accessible to all, regardless of their current proficiency level or background.

#### Development opportunities

We offer all employees a range of development opportunities, encompassing both technical and personal growth, throughout their time with the company. This includes the chance to choose from a pool of trained coaches for one-on-one sessions.

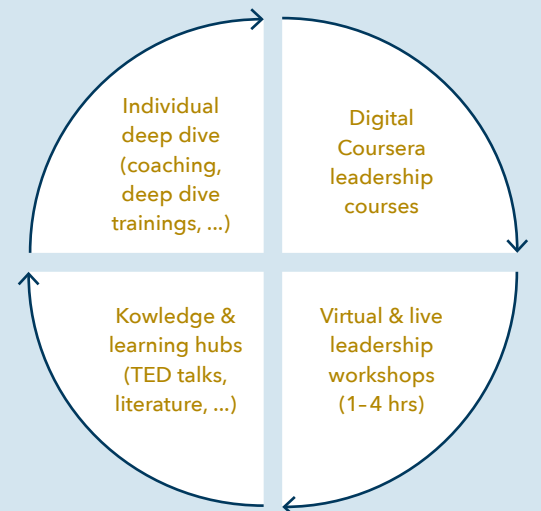
Additionally, we have created an Investment Trainee Programme and International Analyst Programme. Participants rotate through several areas of the company, allowing them to form an overall picture of the business model and structure, while also completing customised training modules. We do this to ensure that we have a diverse team of qualified young personnel in place with the best possible skill set.

#### Eagles Leadership Academy

Established in 2022, the Eagles Leadership Academy is our new group-wide development programme for current and future leaders and line managers. It is customised to their needs and challenges and encompasses all our locations and business units.

The academy's learning opportunities, which are standardised as well as individualised, fit into people's everyday schedules to foster continuous learning. Different approaches include individual coaching sessions, live and virtual group training, digital courses and networking opportunities (see diagram).

#### MODULAR FRAMEWORK





## Talent key performance indicators

As of 31.12.2022

## TOTAL NUMBER OF EMPLOYEES

2020 523  
2021 679  
**2022 688** ↗

688

## WOMEN

2020 46 %  
2021 45 %  
**2022 42 %** ↘

42%

## MEN

2020 54 %  
2021 55 %  
**2022 58 %** ↗

58%



## SHARE OF WOMEN IN LEADERSHIP

2020 31 %  
2021 30 %  
**2022 27 %** ↘ 10 %

27%

## AGE AVERAGE

	2022	2021	2020
> 50	10 %	12 %	10 %
40 - 50	23 %	28 %	28 %
30 - 40	39 %	40 %	40 %
< 30	27 %	20 %	22 %

## AGE AVERAGE BY GENDER

	2022	2021	2020
Ø Men	38	40	39
Ø Women	36	38	37
Ø Total	37	39	38

## NUMBER OF COUNTRIES

2020 12  
2021 15  
**2022 17** ↗

Absolute difference  
to previous year: 2

17

## NUMBER OF NATIONALITIES

2020 39  
2021 43  
**2022 56** ↗

Absolute difference  
to previous year: 13

56

## TURNOVER RATE\*

2020 9 %  
2021 6 %  
**2022 10 %** ↗

Relative difference  
to previous year: 60 %

\*only permanent contracts

10%

## TEMPORARY CONTRACTS

	2022	2021	2020
Temporary contracts	7 %	9 %	8 %

## EMPLOYEES PER COUNTRY

	2022	2021	2020
Germany	379	349	305
Spain	133	203	140
Luxembourg	33	38	32
Singapore	40	18	12
Portugal	28	17	11
Italy	14	16	0
Switzerland	11	8	5
United Kingdom	11	7	6
Greece	10	6	0
Netherlands	6	5	6
Norway	5	4	3
New Zealand	5	3	0
Czech Republic	1	2	1
Japan	3	2	1
Taiwan	6	1	0
Turkey	0	0	1
Korea	2	0	0
Finland	1	0	0
Total	688	679	523

## NEW HIRES\*

2020 160  
2021 251  
**2022 220** ↗

\*only permanent contracts as of 2022

220

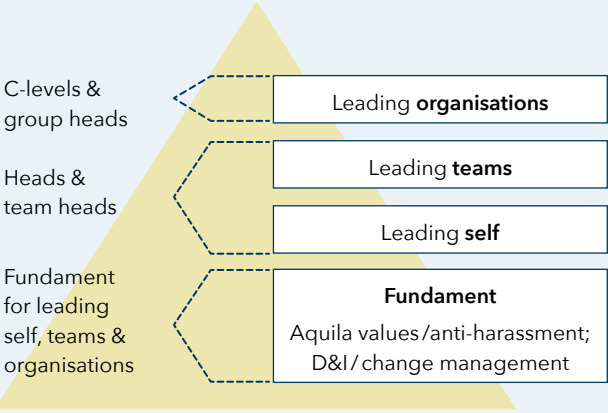
## EMPLOYEES WITH PART-TIME EMPLOYMENT

2020 62  
2021 79  
**2022 71** ↘ 10 %

10%



EAGLES LEADERSHIP ACADEMY SECTIONS

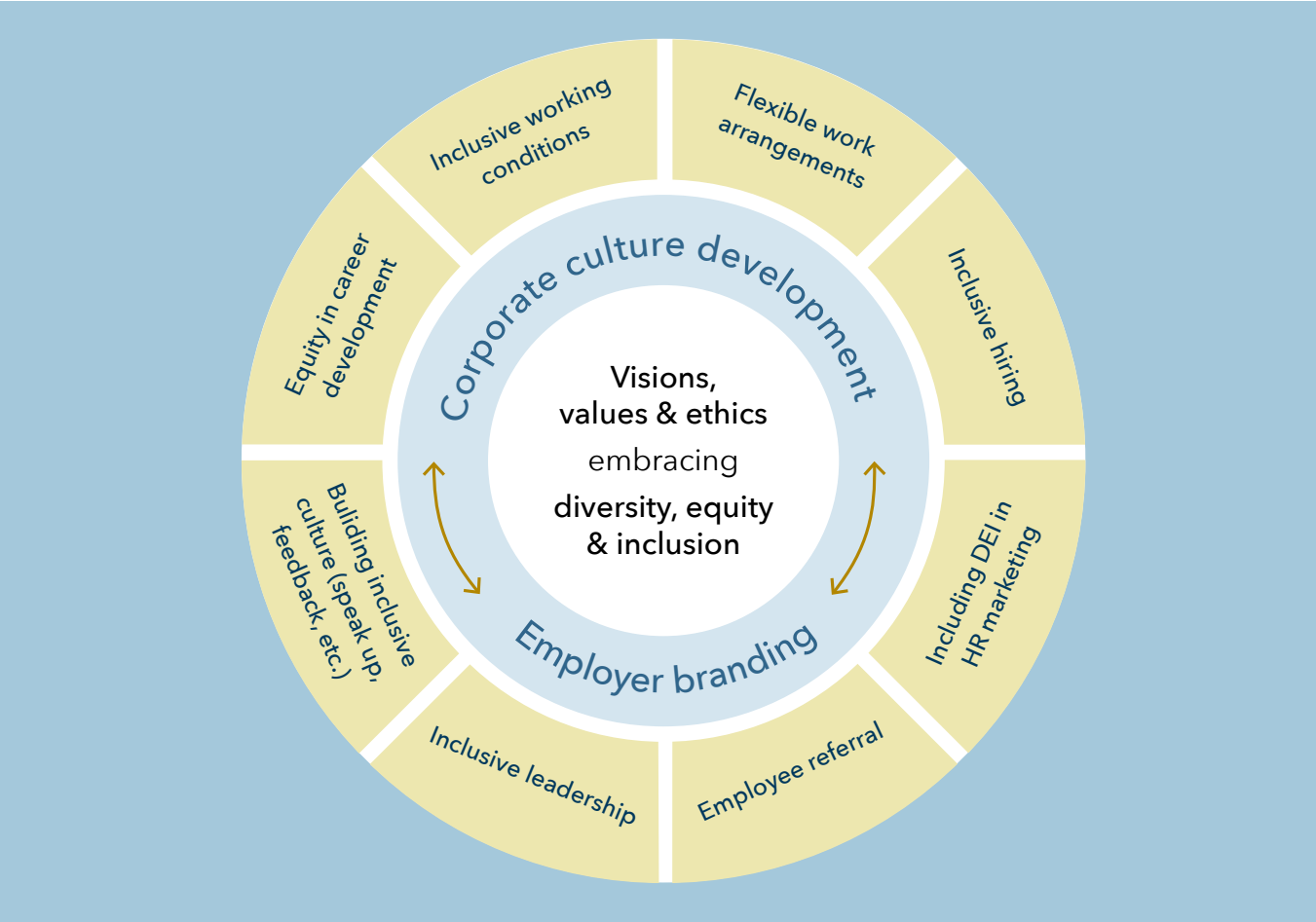


As well as targeting most levels of our leadership, the academy focuses on first-time line managers joining from another company. It offers 11 different topics under the headings of ‘Leading organisations’, ‘Leading teams’ and ‘Leading self’. In 2022, 75 % of line managers (heads and team heads) and 38 % of leaders (group heads and C-level) took up learning opportunities through the academy.

Diversity and inclusion (‘D&I’)

All our employees share the conviction that our common strength, success and performance arises from our diversity and the uniqueness of every single one of us. We embrace differences in culture, gender, age, sexual orientation, abilities, skills and experiences, yet are united in our common values (also to be found on our website) and our shared commitment to sustainability.

Valuing our different approaches helps to create the perfect environment for innovative ideas and opportunities, for taking appropriate risks and, ultimately, for the business success that we promise our investors. And we are committed to being an organisation where all employees feel valued, respected and engaged, with a focus on the areas highlighted in the diversity and equity wheel (see below).



Our D&I initiatives in 2022 included the group rollout of our values (see boxout), the celebration of International Women’s Day and the UN World Day for Cultural Diversity, and the development and rollout of a Female Talent Programme in ACE EMEA, focused on our recruiting efforts in Iberia.

New recruiting tool

We have created new software, called DIVERSE™, to help improve D&I awareness and ensure that we use inclusive wording in job descriptions and other company communications. This will help us to attract the best candidates regardless of gender, age, ethnicity, neurodiversity and physical disability.

Diversity is a vital aspect of our new values. We firmly believe that respect and recognition of the uniqueness of each person ensures the further development of all our employees, and thus our success.

Our managers lead by example in this. Supported by our Eagles Leadership Academy, they are the role models for building a company in which people treat each other with respect. More than 90 of our line managers took part in values awareness sessions in 2022.

THE AQUILA GROUP VALUES

- Launched in Q1 2022, the aim of our new values (*For more information, please refer to our website*) is to improve collaboration and ensure the high quality of work in the execution of our commitment, and our progress towards our long-term goals. These values will help to make our company an even better place to work – somewhere that attracts and retains talent, and where individuals feel comfortable and happy in both their commonalities and their differences, whatever their background or preferences.
- To foster our values and embed them across the firm, we promoted them through a group-wide webinar – an event that involved 300 of our employees. This provided tools and methodologies for line managers to implement our values within their teams, and made culture a topic, either implicitly or explicitly, in all our HR programmes (onboarding events, leadership development, the recruiting process and performance management).

How we manage our own operations

We recognise that carbon neutrality is important for mitigating the impacts of climate change. In 2006, we decided to maintain a carbon neutral footprint by offsetting emissions.

In line with the Greenhouse Gas (GHG) Protocol standards, we are sharing our comprehensive CO<sub>2</sub>e<sup>13</sup> footprint for the second year in a row. Every year we continue to improve our database for emissions calculations, as it is crucial for us to gain a deeper understanding of the drivers of our CO<sub>2</sub>e footprint.

Based on the GHG Protocol, greenhouse gas emissions, which we refer to in the table below as CO<sub>2</sub> equivalents (CO<sub>2</sub>e), cover three frames of reference. Scope 1 emissions refer to the direct

emissions resulting from an organisation’s activities, such as emissions from facilities or company vehicles. Scope 2 emissions encompass indirect emissions resulting from an organisation’s energy consumption, such as from purchased electricity or heat. Lastly, Scope 3 emissions include emissions arising from upstream and downstream activities not directly controlled by the reporting organisation. These can be emissions generated via clients or the supply chain. For Aquila Group, this category currently includes the CO<sub>2</sub>e sources outside of our Scope 1 and 2 boundaries, such as emissions from employee commuting, purchased goods and services, and waste disposal.

13 Greenhouse gas emissions are disclosed as CO<sub>2</sub> equivalents (CO<sub>2</sub>e). All greenhouse gases regulated by the UN Kyoto Protocol have been accounted for: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). For better legibility, the emissions are simply referred to as carbon emissions and reported in metric tons of CO<sub>2</sub>.



## AQUILA GROUP CORPORATE CARBON FOOTPRINT 2021 - 2022

Category	Category Description	2022 (tCO <sub>2</sub> e)	Share of total Scope 1-3 emissions	2021 (tCO <sub>2</sub> e)	% Change to 2021
Scope 1	Refrigerants & others	53	2%		
	Fleet	126	4%		
	Natural gas	168	6%		
	<b>Sum Scope 1</b>	<b>347</b>	<b>11%</b>	<b>562</b>	<b>-38%</b>
Scope 2	Electricity: Market-based	525	17%		
	District heating	158	5%		
	<b>Sum Scope 2</b>	<b>683</b>	<b>23%</b>	<b>340</b>	<b>101%</b>
Scope 3	Purchased goods & services - Paper and board	5	0.2%		
	Purchased goods & services - Water supply	4	0.1%		
	Purchased goods & services - IT equipment	359	12%		
	Upstream transportation & distribution - Courier services	2	0.1%		
	Waste generated in own operations	47	2%		
	Business travel*	1,166	39%		
	Employee commuting	410	14%		
	<b>Sum Scope 3</b>	<b>1,993</b>	<b>66%</b>	<b>1,316</b>	<b>51%</b>
<b>Sum Scope 1 - 3</b>		<b>3,023</b>	<b>100%</b>	<b>2,218</b>	<b>36%</b>

\* Includes parts of the 'Fleet' category from Scope 1 due to changes in calculation methodology compared to 2021.

Our largest share of CO<sub>2</sub>e emissions are Scope 3 emissions, which represent 66% of the total. Business travel plays an important role here, with 39% of all emissions associated with the travel needed to create connectivity with employees, clients and other stakeholders across the regions. 2022 was the year of "back to normal", with the world returning mostly to pre-pandemic levels of activity, especially in terms of business travel. This is not only reflected in the increase of our Scope 3 emissions by 51%, but also in our Scope 2 emissions, which increased by 101%, as post-pandemic our employees returned to offices as well, resulting in higher electricity consumption. In addition to that, our Scope 1 emissions decreased by 38% due to changes in calculation methodology.

Although we recognise that our goal must be to reduce our corporate carbon footprint as much as possible, and that we need to set future goals around our business footprint, there are still actual CO<sub>2</sub>e emissions that we need to tackle. To minimise the impact of our CO<sub>2</sub>e footprint, we collaborate with AQ GreenTeC and have developed an offsetting strategy that aligns with our business model. In addition, we have already equipped ten of our offices with green electricity contracts and are looking forward to adding more in the future.

For our 2022 CO<sub>2</sub>e emissions we have successfully offset our total carbon footprint of 3,023 tonnes of CO<sub>2</sub>e by acquiring Gold Standard carbon credits. One project that was certified was for a wind farm in the central Indian state of Madhya Pradesh. This boasts a total capacity of more than 100MW and consists of 67 turbines, which generate clean electricity through wind power and feed it into the regional power grid. Since wind energy is mostly free of greenhouse gas emissions, the electricity generated replaces the emissions that would otherwise occur if the power was generated from traditional sources such as coal, diesel, oil and gas. Thus, the project avoids the release of CO<sub>2</sub>e emissions into the atmosphere by providing 180 GWh of clean electricity per year for 42,000 households.

In addition to the pure climate protection effect, the project contributes to some of the UN SDGs such as no poverty (SDG #1) and reduced inequality (SDG #10). The wind farm project creates

### GREENHOUSE GAS (GHG) PROTOCOL STANDARDS

There are three frames of reference to measure GHG:

- **Scope 1** emissions refer to the direct emissions resulting from an organisation's activities, such as emissions from facilities or company vehicles;
- **Scope 2** emissions encompass indirect emissions resulting from an organisation's energy consumption, such as from purchased electricity or heat;
- **Scope 3** emissions include emissions arising from upstream and downstream activities not directly controlled by the reporting organisation.

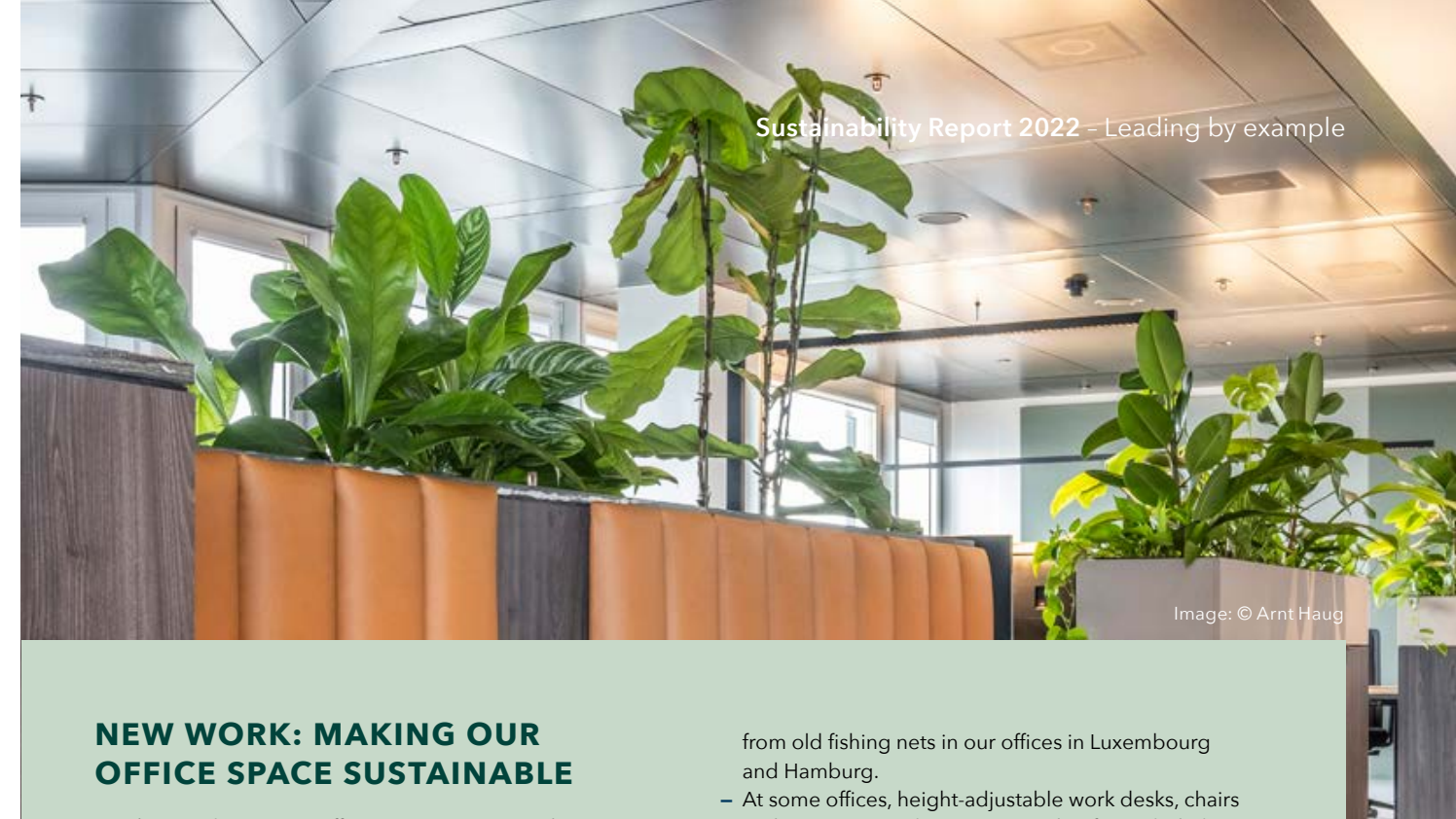


Image: © Arnt Haug

### NEW WORK: MAKING OUR OFFICE SPACE SUSTAINABLE

- When exploring new office premises, we start by looking for buildings with the strongest possible sustainability credentials – those that have been awarded international certifications such as BREEAM, LEED and DGNB. These buildings will preferably be run on green energy, provide charging stations for electrical cars and be close to airports, hotels, supermarkets and social areas, to cut down on unnecessary travelling.
- Any refurbishment of premises is carried out in strict compliance with our sustainability requirements and supervised by a project manager who is one of the experts on our in-house environmental activities. In general, this ensures sustainable use of the building over the long term.
- Some of the more extraordinary ways of being more sustainable in 2022 included using paint that absorbs CO<sub>2</sub> at our Lisbon office and installing carpeting made

from old fishing nets in our offices in Luxembourg and Hamburg.

- At some offices, height-adjustable work desks, chairs and acoustic panels are 80% made of recycled plastic recovered from the ocean, while elsewhere we've tried to reduce the use of plastic by banning all plastic equipment and installing water taps that provide carbonated, cold and hot water, to avoid the need for plastic bottles.
- Employees follow waste prevention and separation rules that have been in place for several years now, and our offices use recycled printer paper and toilet paper. To keep our CO<sub>2</sub> footprint as low as possible, we try wherever possible to work with local suppliers, thereby cutting carbon emissions from transport.
- In IT, there is a focus on providing hardware and software that helps create workstations that can be used by a variety of different people. Overall, offices are designed so that we can easily adapt them or make changes in the future without high costs and a change of materials.

new jobs that improve the financial situation of the local population and helps to counteract local poverty and social inequality. The project has improved the infrastructure in the region and also supports the community through various initiatives, such as supporting 25 schools with donations of resources, and the Clean India initiative, which improves medical and hygiene standards in the country.

When it comes to our CO<sub>2</sub>e emissions, we will continuously improve our GHG calculation methodologies to stay aligned with the latest industry standards. And we plan to use some key levers – renewable energy use and energy efficiencies measures – to reduce our CO<sub>2</sub>e footprint over time and eventually reduce the relative weight of our carbon offsetting activities. We have created a company-wide approach called New Work to create sustainable, modern and multi-use working spaces with long-term usefulness. The concept includes strategies such as sharing facilities where possible, keeping waste to a minimum, and working to lower electricity and heating costs.

2022 represented a very active year for our CO<sub>2</sub>e efficiency measures. We introduced sustainability measures in our offices in Milan, Athens and Lisbon, and a highlight was the new office space at our Hamburg headquarters, which received a Deutsche Gesellschaft für nachhaltiges Bauen (DGNB) platinum certificate and a Leadership in Energy and Environmental Design (LEED) platinum certificate.

In our Hamburg office the environmental features include e-charging stations, green electricity contracts using energy produced by our own onshore wind farms in Norway (Scope 2), waste prevention and waste separation measures, use of local suppliers for refurbishment, creation of carbonated water taps (to eliminate the need for bottled drinking water) and shared desk hardware. This is in addition to the creation of shared workspaces and enhanced acoustics to support employee satisfaction.



## AQUILA GROUP KPIS 2020 – 2022

KPI	Unit	2020	2021	2022
<b>Our company</b>				
Assets under Management (AUM)	bn EUR	10.0	12.3	14.7
Avoided emissions track record	m t CO <sub>2</sub>			10.1
Installed and developed capacity	MW/MWp	9,156	10,615	13,937
Installed and developed capacity track record	MW/MWp	10,751	15,524	18,999
Clean energy produced	TWh	5	6	7
Clean energy produced track record	TWh	18	24	32
Households supplied with clean energy	m	1.5	1.7	2.0
<b>Asset classes</b>				
Wind turbines	number	591	650	768
Solar PV parks	number	209	204	235
Hydropwer plants	number	177	209	276
Battery capacity	MWh	0	75	1.735
Green Logistics area	m sqm	0.70	1.10	1.13
Direct Forest investments	ha	7,402	9,327	13,447
Energy Efficiency projects	number	2	11	42

KPI	Unit	2020	2021	2022
<b>Employees</b>				
Number of employees	number	523	679	688
Number of countries	number	12	15	17
Number of nationalities	number	39	43	56
Turnover rate*	percentage	9	6	10
New hires**	number	160	251	220
Temporary contracts	percentage	8	9	7
Employees with part-time employment	number	62	79	71
<b>Gender diversity</b>				
Women	percentage	46	45	42
Men	percentage	54	55	58
Share of women in leadership	percentage	31	30	27
<b>Age</b>				
Age distribution				
>50	percentage	10	12	10
40-50	percentage	28	28	23
30-40	percentage	40	40	39
<30	percentage	22	20	27
Average age by gender				
Men	years	39	40	38
Women	years	37	38	36
Total	years	38	39	37

\* only permanent contracts

\*\* only permanent contracts as of 2022



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