Climate Action

As a global investor in the energy and utility sectors, we play a crucial role in enabling the low-carbon transition across industries. The energy transition presents both opportunities and challenges for us. Our climate action plan guides our decarbonisation efforts across various sectors. Additionally, our climate resilience assessment provides investors and other stakeholders with insights into our strategies for addressing climate change and its impacts on our business operations.



Climate Action Plan

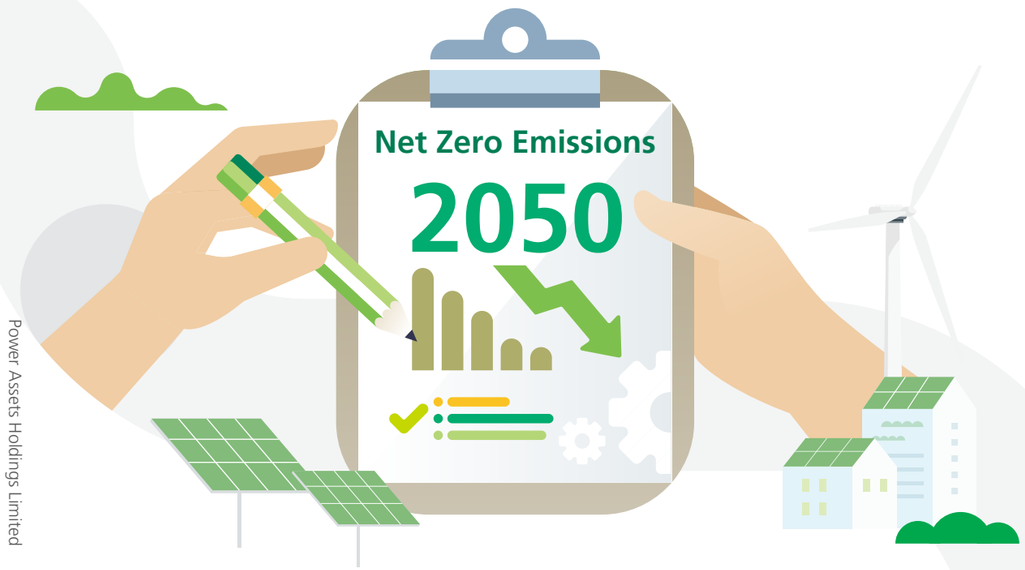
The Group stays aligned with international climate action trends, recognising the increasing momentum to curb GHG emissions. The latest COP29 summit reinforced the urgency of transitioning away from fossil fuels, calling for accelerated efforts to phase down unabated coal-fired power generation, eliminate inefficient fossil fuel subsidies, and implement systematic measures for a just, orderly, and equitable transition.

In full support of these global objectives, the Group remains steadfast in implementing initiatives to significantly reduce GHG emissions. Our strategy is targeting a 67% reduction in Scope 1 and 2 GHG emissions by 2035, using 2020 as the baseline year, and ultimately progressing towards net zero emissions by 2050. Additionally, we are committed to phasing out coal-fired generation by 2035. We are focused decarbonising our energy generation, modernising infrastructure with innovative technology, embracing hydrogen use in gas networks, and guiding our customers towards greater energy efficiency. These efforts collectively reinforce our vision of powering long-term business growth through sustainability.

In establishing our climate targets and action plan, we considered factors such as GHG reduction goals of our portfolio businesses, decarbonisation strategies, national and state climate plans, business planning assumptions, and investment strategies. The path to a net zero economy is constantly evolving, influenced by policy changes, market conditions, technological advancements, and societal expectations. Acknowledging these complexities, we remain committed to strategic foresight, proactive planning, and informed decision-making to navigate and adapt effectively to the ever-changing climate landscape.

The development and progress of targets are reviewed on an annual basis by the Board-level Sustainability Committee. For details, please refer to the Sustainability Governance section.

As a global investor in energy and utility-related businesses, the Group plays a critical role in advancing the low-carbon transition. Committed to decarbonising operations and building climate resilience, the Group has completed a Task Force on Climate-Related Financial Disclosures (TCFD) exercise in 2022 to identify material climate risks and opportunities and conduct climate scenario analysis to evaluate potential financial impacts and assess business resilience across various climate scenarios over time horizons up to 2050.



Supporting a Just Transition

The Group's resilience in the social dimension underscores our dedication to building a just and sustainable future. Our commitment extends beyond environmental impact; we actively support social development initiatives that facilitate a Just Transition to a low-carbon economy, champion gender equality, and empower employees through robust people management practices. By embedding social considerations into our core business strategies, we ensure that our decarbonisation efforts are aligned with Just Transition principles and acknowledge their social implications.

At the core of our climate action, we prioritise people, livelihoods and communities. Our resilience is strengthened through comprehensive supply chain management well-established customer relationships, reliable and modernised assets, and stringent security measures. More than just a presence in the community, we engage, listen, and take meaningful action that fosters mutual growth and shared value. These collective efforts lay the foundation for social resilience, ensuring we create lasting value for stakeholders while advancing sustainable progress and responsible growth.

Our Just Transition Plan



Suppliers

Improving awareness of risks of social disruption and climate change through engagement

Promoting regular reporting of our suppliers' Corporate Social Responsibility (CSR) performance

Employees

Securing a safe and decent work and livelihoods for our employees

Fostering culture of Diversity, Equity and Inclusion

Customers

Accelerating the low-carbon transition through partnerships

Joining UNGC to promote sustainability and social responsibility

Communities

Supporting our community and preventing new inequalities from arising

Creating employment opportunities during the transition

Our Low-carbon Transition Plan

The Group targets to achieve NET ZERO across our operations worldwide

Power Assets' Emissions within its business portfolio[1]

- Generation and Renewables
- Electricity Transmission and Distribution
- Gas Transmission and Distribution
- Energy-from-waste
- Oil Pipelines & Storage Facilities

Up to 2030

Reduce carbon footprint through modernisation, electrification and renewable energy

HK Electric
Increase the share of natural gas in fuel mix

Jinwan Power
Improve coal-fired units by 2025 to reduce fuel consumption and enhance cycle efficiency

WELL
25% reduction in Scope 1 and 2 (excluding line losses) emissions by 2025 (base year 2019)

NGN
45% reduction in Scope 1 and 2 emissions (2018-2031)

2035

- 67% Scope 1 and 2 GHG emissions reduction vs. 2020
- Phase out of coal-fired generation

HK Electric
Phase out coal-fired generation and achieve Science-based Target (SBT) of reducing Scope 1 GHG emission by 68.4% by 2035 (as compared with 2019)

Jinwan Power
Expiry of Jinwan JV arrangement in 2035

RPCL
Expiry of Power Purchase Agreement by 2033

UKPN
Reduce absolute Scope 1 and 2 GHG emissions by 53.1% by 2029 and by 90% by 2040 from a FY2019 base year

SAPN
Reduce Scope 1 and 2 GHG emissions by 50% by 2030 (compared with a base year of 2022)

VPN and United Energy
30% reduction of both Scope 1 and 2 GHG emissions (including distribution line losses) by 2030 from a 2019 baseline

AGIG
Reduce 30% of Scope 1 and 2 GHG emissions by 2030 compared to 2020

WWU
37.5% reduction by 2034 (well below two degrees)

Phoenix Energy
Reduce Scope 1 & 2 carbon emissions (excluding shrinkage) by 60% by 2030 and by 90% by 2035

AVR
Reduce Scope 1 emissions by 30% by 2030

EDL
50% reduction in GHG emissions intensity by 2035 (as compared with 2021)

2050 Net Zero

HK Electric
Pursue net zero before 2050

Canadian Power
Achieve net zero by 2050

SAPN
Achieve net zero (Scope 1 and 2) by 2035

UKPN
Achieve net zero for full carbon footprint by 2040 (SBTi validated)

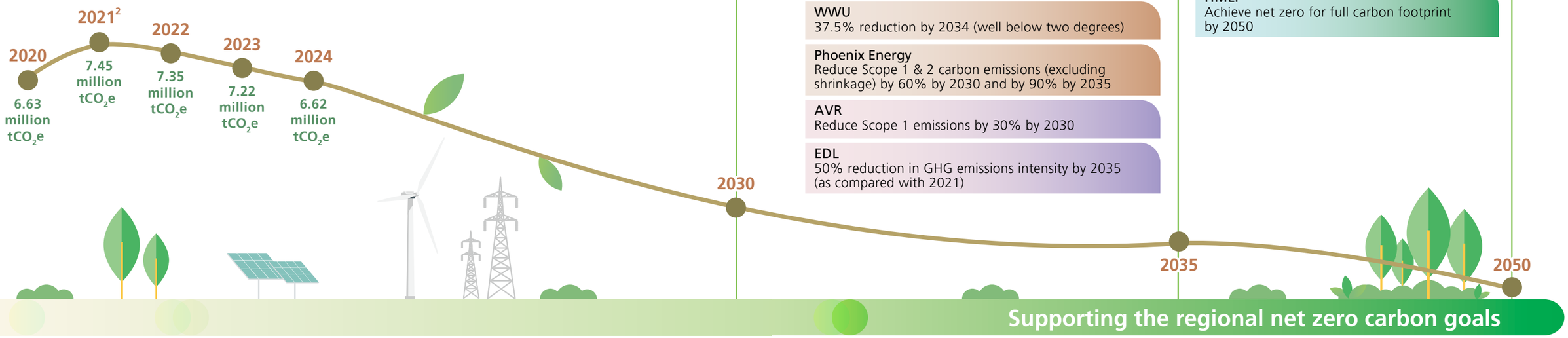
United Energy, VPN and WELL
Achieve net zero (Scope 1 and 2) by 2050

AGIG, NGN, Phoenix Energy and WWU
Achieve net zero by 2050

AVR
Achieve 100% reduction of Scope 1 emission by 2050

EDL
Achieve net zero for full carbon footprint by 2050

HMLP
Achieve net zero for full carbon footprint by 2050



Supporting the regional net zero carbon goals

1 The emissions cover Scope 1 and market-based Scope 2. The emissions from previous years have been restated to align with the calculation approach adopted across reporting years.

2 Comparing with 2020, increase in 2021 emissions was mainly attributed to the resumed normal operation of Jinwan Power after COVID19 lockdown.

Our Five Decarbonisation Levers Guiding our Low-carbon Transition

Group-level strategies

Expanding renewable energy, waste-to-energy, and carbon capture and utilisation

- Increase portfolio of renewable energy generation
- Develop energy infrastructure through carbon capture, utilisation and storage solutions

Modernising and digitalising electricity networks to accommodate more renewables and demand surge

- Establish DSO to maximise network capacity to facilitate customer decarbonisation at the lowest cost
- Reduce distribution line loss emissions through increased uptake of renewable into local electricity grid

Blending green hydrogen and biogenic gas into existing gas distribution network and ultimately replacing natural gas

- Facilitate 100% renewable and carbon neutral gas connection
- Improve reliability, reduce emissions and future proof the distribution networks

Promoting reduction and recovery of methane

- Reduce gas shrinkage through pipeline replacement and innovations in pressure management
- Develop low-carbon energy projects with biomethane

Implementing circular economy to reduce waste

- Divert waste from landfills with energy recovery to electricity, steam and heat and recycling of residual waste such as metals, plastics and minerals
- Divert waste from landfills with the use of recycled and low-carbon materials, material recovery and recycling across value chain

BU-level strategies

- EDL: Expand renewable energy portfolio
- HK Electric: Increase the adoption of renewables and explore the potential applications of zero-carbon energy import
- HK Electric: Recycle by-products, ash and gypsum, generated from coal-fired generation for industrial use
- HK Electric: Explore opportunities to optimise power grid operation and plan for green development
- AGN, MGN: Continue to facilitate 100% green gas connection by 2050
- AGIG: Develop renewable and carbon neutral gas projects
- EDL: Focus on development of low-carbon energy projects such as landfill gas, renewable natural gas (RNG) and remote hybrid renewables

2025
- SAPN: Achieve a net 100% renewable grid

2026
- United Energy: Increase total installed capacity of renewable energy generation on the network to 800 MW
- VPN: Scaling total installed capacity of renewable energy generation on the network to 4 GW
- WWU: 10% shrinkage reduction from 2020-21 baseline
- NGN: 24% reduction in gas leakage over RIIO-GD3 (April 2026 to March 2031)

2028
- HK Electric: Increase aggregate electricity generated from RE sources of HK Electric and its customers to over 15 GWh/year
- UKPN: Reduce fluid filled cable leaks by 15%

2030
- AGIG: Target 10% renewable and carbon neutral gas in distribution networks (by AGIG or third parties)
- Phoenix Energy: Introduce 20% green gas into the Distribution Network
- WWU: 82.44% of LP/MP network has been upgraded to hydrogen-ready polyethylene pipe
- Phoenix Energy: 75% reduction in the volume of waste sent to landfill

2031
- NGN: 0% waste to landfill by 2031

2040
- WWU: Be'net zero ready' for 100% hydrogen across the whole network

2050
- NGN: Transport 100% green gas in the network
- AGIG: Target 100% renewable and carbon neutral gas in distribution networks

2025 2030 2035 2050

Climate-related Disclosures

The Group conducted a climate scenario analysis to assess the potential impacts of climate-related risks and opportunities on our strategy, ensuring its resilience and adaptability to evolving environmental, regulatory, and market dynamics.

The assessment included the evaluation of physical risks, such as the impacts of extreme weather events including storms, floods and heatwaves on operations, infrastructure and potential business interruptions. Additionally, transition risks and opportunities were analysed in the context of macroeconomic changes, including shifts in market demand, policy developments, technological advancements, and evolving consumer preferences as part of the transition to a low-carbon economy.

These analyses ensure that our business remains resilient and adaptive to both physical and transition-related climate challenges. The analyses made use of a proprietary scenario analysis model to evaluate the potential physical and transition risks and opportunities under different hypothetical scenarios, enabling informed decision-making processes and reinforcing the resilience of our business future.Our scenario analysis was achieved by considering the most critical contribution of each business unit in terms of the EBIT and total assets of the Group. We also considered strategic importance to ensure comprehensive coverage of the majority of the financial value at risk, as well as diverse range of business sectors and geographical locations. Following the financial materiality review and strategic considerations, three business sectors across three geographical regions account for over 80% of the Group's EBIT and total asset values were covered.

For 2024, no material changes in climate risks or opportunities were identified, validating the robustness of our current strategies. This section summarises key inputs and findings from the climate scenario analysis. The detailed methodology and findings, which include qualitative and quantitative assessments of anticipated financial impacts, were disclosed in our 2023 Sustainability Report, also available as a standalone report on our website.

Key inputs for climate scenario analysis

	4°C business-as-usual scenario	1.5°C high-transition scenario
Climate scenarios	• Physical risk model: Emission models using CMIP5 data are applied for asset stress testing under two scenarios: a high-emission business-as-usual trajectory (RCP8.5) and a low-emission trajectory (RCP2.6). • Transition model: A global economic model analysing potential carbon emissions and the macroeconomic impacts of emission constraints using data from leading sources, including the IEA, IIASA, MAGICC, JRC GECO reports, and GTAP databases. This Integrated Assessment Model incorporates IPCC-established climate science.	
Type of climate factor	• Physical risks: acute/chronic • Transition risks • Transition opportunity	
Timeframe	Three time horizons were chosen to align with our internal actionable planning timeframes and to reflect the long-lived nature of our infrastructure assets: • Short-term (1-5 years) • Medium-term (5-15 years) • Long-term (15-30 years)	
Base year	2021	
Scope and boundaries	Selected seven business units, which • Contribute over 80% of the Group's EBIT and total asset values; and • Include electricity and gas transmission and distribution businesses whose industries could be profoundly impacted by climate change	

Key Climate Risks and Opportunities on Our Business Model and Value Chain

We recognise the importance of understanding how all the identified climate-related risks and opportunities would impact our business model and value chain:

- **Business model:** Power Assets operates a diversified business model focused on investing in and managing energy-related assets across four continents. We invest in a variety of energy sectors, including electricity generation, transmission, and distribution, as well as gas transmission and distribution, and oil storage and transmission. A majority of our investments are operated under regulatory regimes, which provide stable and predictable revenue streams. Please refer to Our Business Portfolio for more information.
- **Value chain:** Power Assets integrates sustainability across its value chain as part of our management approach to transitioning our global business towards carbon neutrality and achieving long-term sustainable growth. We encourage our businesses to implement and practice sustainable business principles, ensuring that their operations contribute positively to the communities and ecosystems in which they operate. For details, please refer to the Value Chain chapter.

Potential impacts of physical risks on our business model and value chain

Identified climate-related physical risks from scenario analysis	Geographical locations and relevant sectors considered	Potential impacts on business model and value chain
• Coastal flooding • Riverine flooding • Surface water flooding • Extreme wind • Extreme heat • Forest fire	Australia – Gas T&D, Electricity T&D Hong Kong – Generation, Electricity T&D UK – Gas T&D, Electricity T&D	• Higher maintenance costs and insurance premiums may strain budgets. • Climate stress can accelerate asset deterioration, increasing costs and reducing availability. • Climate events may disrupt supply chains, cause financial losses, and increase customer complaints. • Climate events may give rise to service delays, reducing customer satisfaction, straining stakeholder relationships, and harming reputation.



Potential impacts of transition risks and opportunities on our business model and value chain

Identified climate-related transition risks and opportunities from scenario analysis	Geographical locations and relevant sectors considered	Potential impacts on business model and value chain
• Changing demand for electricity from grid • Change demand for natural gas • Increasing in fuel costs • Increasing labour costs • Introduction of carbon taxes • Increasing prices of raw materials	Australia – Gas T&D, Electricity T&D Hong Kong – Generation, Electricity T&D UK – Gas T&D, Electricity T&D	• Shifts in sustainable energy consumption may alter energy demand patterns, driven by EV adoption and reduced gas use for heating, hot water, and cooking. • Switching from gas to electricity may increase energy costs, with rising costs passed on to customers. • Growing public and political pressure to adopt sustainable practices. • Growing demand for green electricity may stimulate growth in clean technology, which requires significant investment in energy infrastructure. • Increasing investment in alternative green energy and innovation creates opportunities for technological advances. • Potential supply chain disruptions on fuel and raw materials could impact energy delivery and supply reliability. • Investments in automation and technology may reduce labour demand, while improving operational efficiency helps offset rising labour costs. • Carbon taxes can incentivise businesses to reduce their carbon footprint and promote innovation in green technology. • Expensive digital technologies may create inequalities and vulnerabilities for customers.

Business Resilience Measures

The Group's proactive approach to managing climate-related risks and opportunities is closely aligned with our climate action plan. By addressing risks, enhancing resilience, and capitalising on opportunities in renewable energy and low-carbon technologies, the Group is well-positioned to support the global energy transition. This approach ensures long-term value creation for stakeholders while contributing to a sustainable future.

The Group has enhanced resilience to physical risks through a range of measures, including emergency response plans, infrastructure reinforcement and improved asset preparedness. We also mitigate risk through a geographically diversified portfolio and adaptive measures, ensuring preparedness for extreme weather events and other climate-related impacts. For more details, see the Climate Resilience and Adaptation section.

The Group is managing risks and seizing opportunities arising from the low-carbon transition. We are preparing stricter policies and leveraging new technologies to response to changing market and consumer expectations. Our focus is on improving electricity infrastructure to support renewable energy demand and integrating flexible capacity assets. We are also exploring ways to repurpose gas assets for hydrogen and other low-carbon uses. Additionally, the Group collaborates with business units to develop decarbonisation strategies, including carbon capture and renewable energy integration.

For an overview of how our climate-related disclosures in the Sustainability Report, Annual Report and standalone Climate-related Disclosures Report address the new climate reporting requirements of the HKEX ESG Reporting Code, please refer to the HKEX ESG Reporting Guide Content Index.

Sustainable and Responsible Investment

As the global economy advances towards a low-carbon future, sustainable investment in infrastructure and innovation is critical. The Group's long-standing expertise in sustainable investments and operations positions us to drive value creation while capturing opportunities in this transition. We believe that sustainable growth and financial success are interconnected, and at the core of our strategy, we embed ESG principles to guide our investment and operational decisions.

Recognising that ESG performance is not merely about regulatory compliance but a critical enabler of long-term value, the Group rigorously evaluates potential investments through a holistic lens. This includes assessing both financial and non-financial criteria, with a particular emphasis on ESG impact, ensuring that our capital allocation supports responsible growth and resilience.

ESG factors in evaluating potential investments

To ensure a more thorough evaluation of potential investments and acquisitions, we incorporate a wide range of relevant non-financial criteria into our assessment process. These factors include:

- Compliance with legal, regulatory, and ESG-related obligations and standards
- Current and potential physical climate risks, along with mitigation strategies
- Impacts and opportunities related to the energy transition
- Land use and biodiversity considerations
- Energy consumption and carbon emissions
- Water resource management
- Waste management practices
- Labour relations
- Operational performances such as health and safety records
- ESG commitments and targets

These criteria are regularly refreshed and updated to ensure management remains well informed when making decisions.



Strategic Focus on Low-Carbon Investments Drives 2024 Acquisitions



In 2024, the Group intensified its strategic focus on identifying global investment opportunities that align with its ESG criteria and commitment to sustainable energy, prioritising renewable energy and low-carbon solutions. This year marked a significant step forward with the completion of three strategic acquisitions of low-carbon energy businesses in the UK.

UK Renewables Energy

In September 2024, the Group acquired a 20% stake in a portfolio of operating onshore wind farms in the UK. This portfolio features 32 wind farms located in England, Scotland, and Wales, totalling 175 MW in installed capacity. The UK Renewables Energy is formed after the acquisition of the portfolio.

Phoenix Energy

In April 2024, the Group acquired a 20% stake in Phoenix Energy, Northern Ireland's largest natural gas distribution network. This business offers substantial decarbonisation potential, supporting the Northern Ireland government's net-zero targets.



Phoenix Energy is actively exploring ways to decarbonise home heating by providing greener gas solutions, including biomethane and hydrogen. Collaborating with industry partners, the company is developing market frameworks to facilitate the introduction of renewable gas solutions into the local gas network. Five near-term actions have been launched to sustainably integrate these renewable gases, with the belief that successful implementation will significantly bolster decarbonisation across homes, businesses, and the wider energy system. A hybrid heating trial is also underway to assess the impact of demand-side solutions for in Northern Ireland's retrofit market, combining gas boilers and heat pumps to enhance energy efficiency and reduce GHG emissions.

Powerlink Renewable Assets Acquisition

In May 2024, the Group further expanded its renewable energy portfolio with the acquisition of Powerlink Renewable Assets through UK Power Networks Services. This acquisition adds 70 renewable power-generation assets—including solar, wind, and hydro plants—across the UK, increasing the capacity of its renewable assets by 69 MW.



ESG Integration into our Investment Process

1 Investment Screening

Monitor sustainability and energy transition trends, and identify suitable acquisition targets

- **Monitoring industry trends:** Regularly monitoring ESG trends and regulations that may affect the infrastructure industry.
- **Identifying acquisition targets:** Identifying assets or businesses that align with our investment mandate for long-term, stable returns, while also considering ESG factors, including investments that the Group avoids or excludes.

2 Pre-investment Due Diligence

Assess ESG risks and ensure compliance

- **Assessing ESG risks:** Identifying any environmental impacts and regulations, social concerns, and governance issues that could affect the investment's performance.
- **Evaluating compliance:** Ensuring the potential investment adheres to relevant ESG-related laws, regulations, and standards.

3 Investment Decision-making

Integrate ESG factors in business analysis for investment decisions

- **Integrating ESG into business analysis:** Assessing how ESG factors may affect business strategy and could impact the financial outcomes, including potential costs, savings, or revenue drivers.
- **Weighing ESG factors:** Giving appropriate consideration to material ESG issues in the investment appraisal and selection process.

4 Post-investment Management

Enhance ESG performance through monitoring and engagement

- **Reporting and monitoring:** Regularly tracking ESG performance and reporting on progress against ESG objectives and metrics; incorporating ESG topics into the agendas of ongoing Committees under Board supervision for enhanced oversight and strategic integration.
- **Active engagement:** Working with the management of invested entities to improve their ESG performance, leveraging the ESG experience and best practices across business units to foster a culture of sustainability and responsibility.

In response to the urgent challenges of climate change, green investments form a cornerstone of our strategy. Across our portfolio businesses, we are directing substantial capital and operational expenditures toward projects that deliver long-term environmental benefits, enhance operational efficiencies, and align with global sustainability goals. Our commitment to mobilising capital towards a greener economy reinforces our role as a key enabler of sustainable progress, helping to power long-term growth through responsible investment and innovation.

In 2024, the Group and its business units allocated approximately HK$12.8 billion in capital and operating expenditures to comprehensive sustainability programmes. These expenditures were directed toward four key areas: Low-carbon transition technology; Sustainable transport; Asset modernisation and energy Integrity and Water, biodiversity and circular economy. Capital expenditures accounted for 86% of total spending on sustainable initiatives. As part of a strategic approach to climate mitigation and adaptation, the Group's targeted capital deployment demonstrates a coordinated effort across the Group and portfolio levels to implement our net-zero transition plan and strengthen the climate resilience of our assets.

Total Spending on Sustainable Activities in 2024: HK$12.8 billion

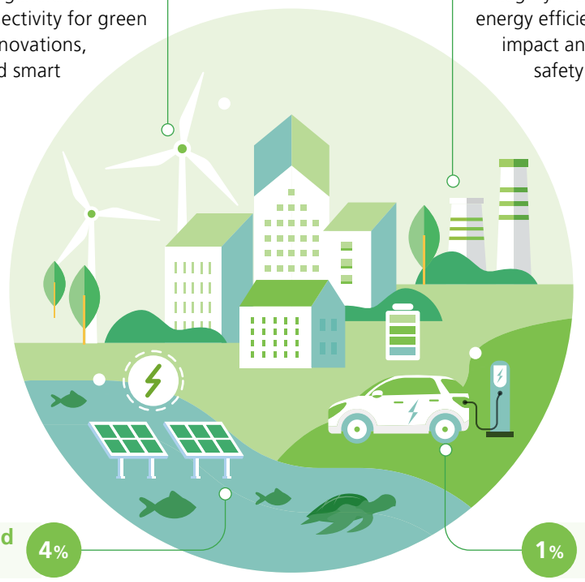
Capex: HK$11 billion Opex: HK$1.8 billion

Low-carbon Transition Technology — 60%

Investments are aimed at renewable energy deployment, power generation decarbonisation, grid connectivity for green sources, carbon capture innovations, bioenergy development and smart grid upgrades to optimise energy distribution.

35% Asset Modernisation and Integrity

Investment in asset modernisation and integrity is being prioritised to enhance energy efficiency, reduce environmental impact and uphold the reliability and safety of operational procedures.



Water, Biodiversity and Circular Economy — 4%

Our capital is directed towards a comprehensive approach that encompasses sustainable water management, circular economy principles and the active preservation of biodiversity within ecosystems.

1% Sustainable Transport

Projects focus on transitioning to electric transport, expanding electric vehicle infrastructure and promoting eco-friendly urban mobility.

VPN: Investing in Technology to Strengthen Network Operations and Support Future Energy Needs

VPN is significantly investing in technology and innovation to enhance its role as a network operator, with a planned A$28.2 million investment in 2024, up from A$0.4 million based on 2019 data.

Key initiatives include the deployment of its Low Voltage Distributed Energy Resource Management System (LV-DERMS), which helps comply with the Victorian Government's emergency mechanism for rooftop solar systems connected after October 1, 2024. This system also supports Powercor's flexible exports trial, set to expand in 2025.

Additionally, CitiPower has begun upgrading Melbourne's underground power network to help meet rising electricity demand with higher capacity assets. VPN introduced new measures for unplanned outages, providing customers with real-time information about repair crews and fault locations.



Powercor is tripling the power capacity at Ballarat Base Hospital and enhancing the local network to support more domestic rooftop solar, electric vehicles and advanced technologies

UKPN: Driving a Green Transition through Electrifying Public Transport

As part of its commitment to sustainable community development, UKPN is leading efforts to transform public transport infrastructure. With a £4 million investment, UKPN has electrified Arriva's bus fleet in Thornton Heath. The project, funded through the Green Recovery Fund, fast-tracked a 4.5MW power connection for the Whitehall Road bus depot, enabling the operation of 109 electric buses. To achieve this, UKPN installed 5 km of high-voltage underground cabling and upgraded local substation equipment. These enhancements are reducing carbon emissions and improving air quality across London, contributing to a cleaner and healthier urban environment.



UKPN has installed 5 km of new high-voltage underground cabling, promoting cleaner air and reduced carbon emissions.