



Power Assets Holdings Ltd.

電能實業有限公司

(Stock Code : 6)



Sustainability at our heart

Sustainability Report
2021



About Power Assets

Power Assets Holdings Limited (“Power Assets” or the “Company”, together with its subsidiaries, the “Group”) is a global investor in energy and utility-related businesses with interests in the transmission of electricity, gas and oil, the distribution of electricity and gas, as well as the generation of energy from thermal, waste, and renewable sources.

From our origins in Hong Kong over a century ago, the Group also has a presence today in the United Kingdom, Australia, New Zealand, Mainland China, Thailand, the Netherlands, Canada and the United States, bringing reliable, affordable energy to about 19 million homes and businesses. The bulk of our business derives from our interests in 516,700 km of power, gas and oil networks, supplemented by investments in around 10,000 MW of power generation facilities.

Our investments comprise primarily regulated energy infrastructures. In 2021, around 80% of our Group’s share of total fixed assets of joint ventures and associates (“the Assets”) comprise transmission and distribution of gas and electricity infrastructures. Power generation assets account for around 12% of the Assets with coal-fired generating facilities having been steadily reduced over the years and currently down to less than 5% of the Assets.

We are delighted to share in this report our innovations and achievements to combat global warming in support of the decarbonisation efforts and COP26 commitments in the communities that we operate in. We trust you will find the chapters on hydrogen, a replacement fuel for natural gas, the digitisation and automation of electricity networks as well as our systematic power generation decarbonisation programme interesting – and exemplary.

Listed on the Stock Exchange of Hong Kong as a constituent share of the Hang Seng Index, Power Assets has been a constituent of the Hang Seng Corporate Sustainability Index since 2010.



Sustainability at our heart

At Power Assets, a deep commitment to sustainable development lies at the heart of everything we do. Across our operating companies, every single initiative large or small integrates environmental, social, and ethical best practices at the strategic and operational levels. The heart and infinity sign on the cover of our 2021 Sustainability Report represent these multifaceted efforts that place sustainability at the very core of all our activities.

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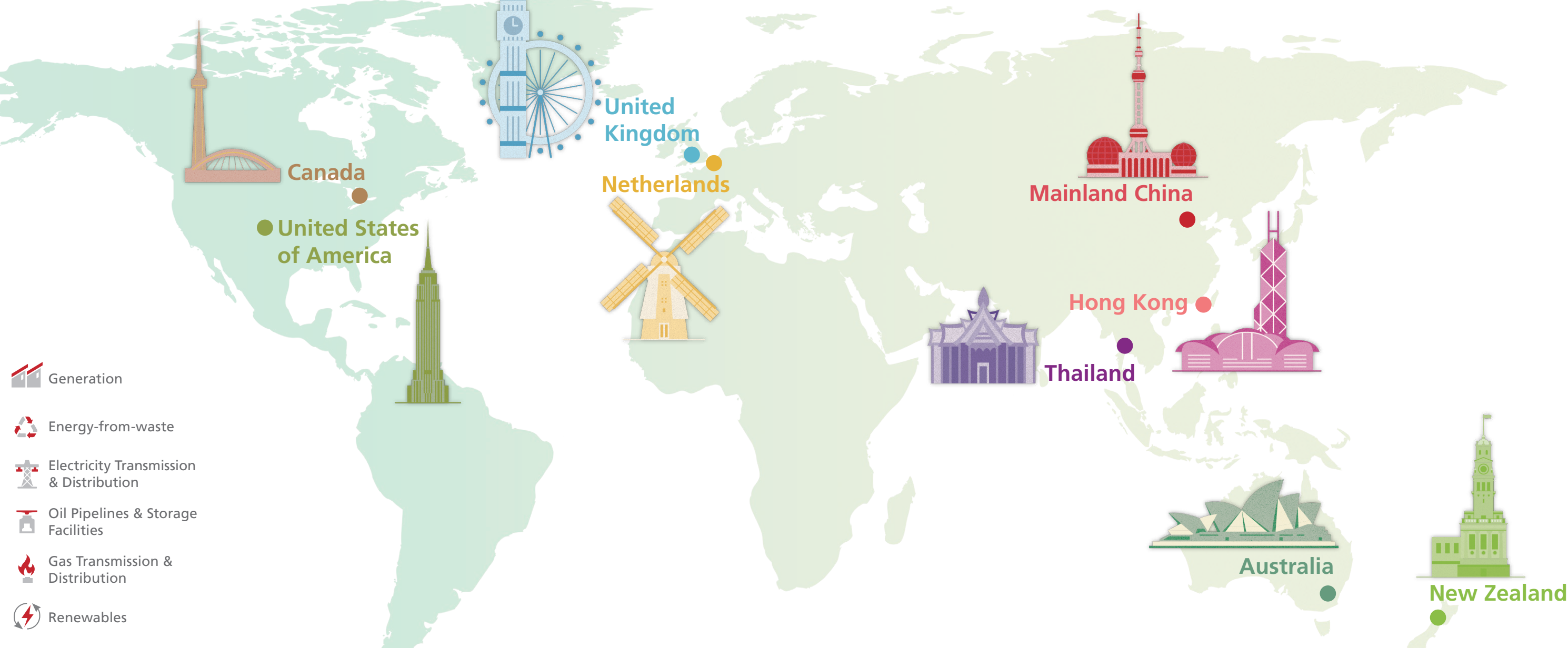
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Our Business Portfolio



Generation

Energy-from-waste

Electricity Transmission
& Distribution

Oil Pipelines & Storage
Facilities

Gas Transmission &
Distribution

Renewables

Canada

Canadian Power Holdings

Husky Midstream Limited Partnership

Energy Developments Pty Ltd

United States of America

Energy Developments Pty Ltd

New Zealand

Wellington Electricity Lines

United Kingdom

UK Power Networks

Northern Gas Networks

Wales & West Utilities

Seabank Power

Energy Developments Pty Ltd

Netherlands

Dutch Enviro Energy Holdings B.V.

Mainland China

Jinwan Power

Dali Wind Power

Laoting Wind Power

Hong Kong

HK Electric

Thailand

Ratchaburi Power Company

Australia

Australian Gas Networks

SA Power Networks

Victoria Power Networks

Australian Energy Operations

United Energy

Dampier Bunbury Pipeline and AGI Development Group

Multinet Gas

Energy Developments Pty Ltd

Our Business Portfolio

Generation Capacity

Renewable Energy /
Energy-from-waste**1,064** MW

Gas-fired

5,214 MW

Coal / Oil-fired

3,815 MW

Customers

19,344,000

Employees

17,600

Power and Gas / Oil Network Length

Power Network

402,500 km

Gas / Oil Pipeline

114,200 km

United Kingdom

UK Power Networks (UKPN)

Network Length	189,500 km
Customers	8,400,000
Joined / Interest	2010 / 40%

Northern Gas Networks (NGN)

Gas Pipeline Length	36,100 km
Customers	2,700,000
Joined / Interest	2005 / 41.29%

Wales & West Utilities (WWU)

Gas Pipeline Length	35,000 km
Customers	2,600,000
Joined / Interest	2012 / 36%

Seabank Power

Installed Capacity	1,140 MW
Joined / Interest	2010 / 25%

Hong Kong

HK Electric

Network Length	6,700 km
Customers	584,000
Installed Capacity	3,617 MW
Established / Interest	1889 / 33.37%

Mainland China

Jinwan Power

Installed Capacity	1,200 MW
Joined / Interest	2009 / 45%

Dali and Laoting Wind Power

Installed Capacity	
Dali	48 MW
Laoting	49.5 MW
Joined / Interest	
Dali	2007 / 45%
Laoting	2008 / 45%

Thailand

Ratchaburi Power Company (Ratchaburi Power)

Installed Capacity	1,400 MW
Joined / Interest	2001 / 25%

Australia

SA Power Networks (SAPN)

Network Length	89,800 km
Customers	899,000
Joined / Interest	2000 / 27.93%

Victoria Power Networks (VPN) (which owns Powercor and CitiPower)

Network Length	
Powercor	90,400 km
CitiPower	7,700 km
Customers	
Powercor	868,000
CitiPower	334,000
Joined / Interest	
Powercor	2000 / 27.93%
CitiPower	2002 / 27.93%

Australian Gas Networks (AGN) (a member of Australian Gas Infrastructure Group (AGIG))

Gas Pipeline Length	26,700 km
Customers	1,367,000
Joined / Interest	2014 / 27.51%

Dampier Bunbury Pipeline and AGI Development Group (collectively known as "DBP") (a member of AGIG)

Gas Pipeline Length	4,100 km
Joined / Interest	2017 / 20%

Multinet Gas (MGN) (a member of AGIG)

Gas Pipeline Length	10,100 km
Customers	718,000
Joined / Interest	2017 / 20%

United Energy

Network Length	13,500 km
Customers	702,000
Joined / Interest	2017 / 20%

Energy Developments Pty Ltd (EDL)

Installed Capacity	1,156 MW
Joined / Interest	2017 / 20%

Australian Energy Operations

Network Length	71 km
Joined / Interest	2012 / 50%

New Zealand

Wellington Electricity Lines (Wellington Electricity)

Network Length	4,800 km
Customers	172,000
Joined / Interest	2008 / 50%

Canada

Canadian Power Holdings (Canadian Power)

Installed Capacity	
Meridian	220 MW
TransAlta	1,064 MW
Okanagan Wind	30 MW
Joined / Interest	
Meridian	2007 / 50%
TransAlta	2007 / 25%
Okanagan Wind	2021 / 50%

Husky Midstream Limited Partnership (HMLP)

Oil Pipeline Length	2,200 km
Oil Storage Capacity	5.9 million barrels
Pipeline Gathering System Capacity	409,000 barrels/ day
Joined / Interest	2016 / 48.75%

Netherlands

Dutch Enviro Energy Holdings B.V. (which owns AVR-Afvalverwerking B.V. (AVR))

Installed Capacity	
Waste-to-Energy Units	138 MW
Biomass-Fired Units	30 MW
Joined / Interest	2013 / 27%

Message from the Chief Executive Officer

I am pleased to present the Sustainability Report of the Power Assets Group for the financial year to 31 December 2021. Providing well-maintained, affordable, and clean energy, while placing sustainability considerations at the heart of all our activities, is the essence of the Group's mission and investment proposition.

As a provider of energy infrastructure, our services touch the lives of more than 19 million homes and businesses worldwide through our operating companies, which spread across four continents.

With around 80% of the Assets¹ in regulated utilities – the transmission and distribution of electricity and gas in UK, Hong Kong, Australia, and New Zealand – these widespread touchpoints position us well to progress and deliver on our sustainability framework and goals, especially around combating climate change and supporting the vulnerable.

In the gas distribution sector, we are working with the UK government to demonstrate the viability of blending up to 20% hydrogen with natural gas in private and public networks². If rolled out to all homes in the UK, this initiative is equivalent to removing 2.5 million vehicles from the roads. We are also producing and blending green hydrogen into the existing natural gas networks to leverage the networks' transportation and energy storage capabilities. Our ultimate target is to replace natural gas with 100% hydrogen for home heating – our zero-emission ambition. In the electricity distribution sector, we are proactively digitising our distribution network to make the automated system more agile and flexible in order to accommodate a record quantum of distributed renewable energy to supply more green energy for the anticipated uptake of electric vehicles.

These last 12 months were difficult for many of the Group's stakeholders, with unprecedented challenges continuing to affect daily endeavours as a result of COVID-19. Being an essential service provider, our seamless delivery of affordable and reliable energy to communities throughout this pandemic-affected period entailed continued compliance with a number of precautionary measures to keep our customers and employees from harm's way.

Throughout the year, we maintained and deepened our commitment to sustainable business practices. Our strategy is built on five pillars comprising our business, our people, the environment, the community, and our value chain. A board-level Sustainability Committee ensures policies and targets are in place to integrate this ethos across all our operations.

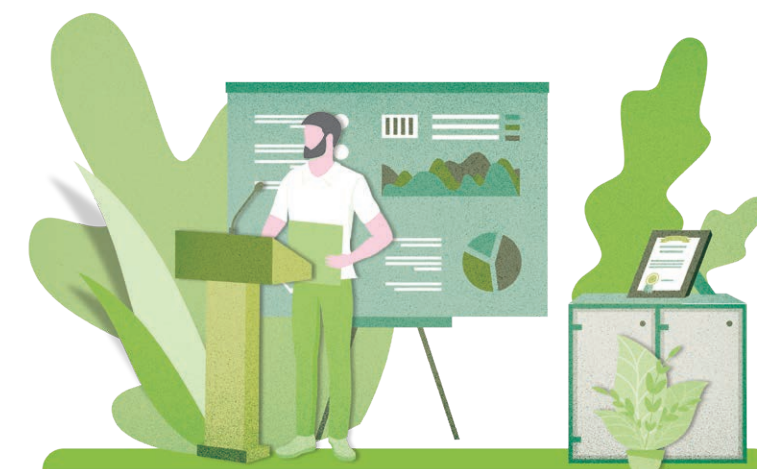
We have closely aligned with wider national and international sustainability aspirations, including the recent COP26 in Glasgow, and established concrete targets to combat climate change and achieve carbon neutrality within the next two to three decades. In several of our key markets – including Hong Kong, the UK, Australia, and the Netherlands – our operating companies have pledged to support their government's net zero commitments. Not only do we proactively reduce carbon emissions from every aspect of our business, we actively pursue carbon offsetting opportunities, including energy-from-waste projects, investments that utilise landfill gas, and waste coal mine gas for heat and power generation to abate the discharge of methane into our atmosphere.

One of our Group's top priorities to address climate change is to reduce carbon emission from our 10,093 MW of power generating facilities.

Our power generation facilities represent around 12% of the Assets, which includes various types of power generating technologies – renewable in wind and solar farms, energy from waste facilities, and gas and coal-fired facilities. Power Assets has steadily relinquished 2,890 MW of coal-fired facilities from our investment portfolio since 2016. Following "Hong Kong's Climate Action Plan 2050", we shall be phasing out the remaining coal-fired facilities in Hong Kong by the early 2030s and shall collaborate with the HKSAR Government on the best way forward to realise carbon neutrality for Hong Kong.

To increase carbon offsetting opportunities, we are actively pursuing investment in renewables energy in our key markets. Canadian Power acquired two wind farms in Okanagan in June 2021, marking its entry into renewable energy generation. HK Electric is planning for a large-scale offshore wind farm in Hong Kong waters. In Australia, Energy Developments Pty Ltd is building a number of hybrid renewable projects to power remote off-grid communities utilising at least 50% renewable energy over the long term. In the Netherlands, AVR leads the production of energy-from-waste, with commercial-scale carbon capture and utilisation technologies in operation. In parallel, many of our innovative technologies such as flue gas desulphurisation technology, catalytic converters, and 4R recycling measures are helping to reduce our facilities' carbon footprint.

Our operating companies in Hong Kong, the UK, Australia and New Zealand have invested in digital technology to make the automated network more agile and dynamic, capable of receiving a massive influx of intermittent renewable energy and redistributing it across the grid. They are also conducting research and trials to understand the impact on the grid of large-scale private and public electric transportation. The insights from these projects will prove invaluable in reinforcing our transmission and distribution networks to support zero-emissions transportation.



Another key aspect of our sustainability commitment is the provision of highly efficient and affordable electricity. Our operating companies in the UK and Australia were in the forefront of the industry for efficiency and innovation, often winning incentives from regulators for their leadership in this regard. HK Electric continued to provide highly reliable power supply, reaching a record rating of over 99.9999% for the second year in 2021.

As the COVID-19 pandemic continued to take a heavy toll on communities and economies around the world, our operating companies maintained their support for the vulnerable and needy. In the UK, our gas and electricity distribution networks have all extended assistance to the energy-poor. In Hong Kong, HK Electric set aside HK\$63 million from its three existing funds to promote energy efficiency and to help alleviate the economic impact of the pandemic.

Our top priority is the welfare of our employees, and all operating companies strive to be employers of choice. UKPN was named sixth in the list of large UK companies to work for, and HK Electric has consistently been placed among the top ten most attractive employers to work for in the Randstad Hong Kong Employer Brand Research.

- 1 "the Assets" percentages are based on the Group's share of total fixed assets of joint ventures and associates since revenue and profit related figures could be highly distorted by the volatility in fuel and power prices.
- 2 HyDeploy

Sustainability remains paramount in our aspirations to leave a greener, healthier planet for future generations. With this in mind, we will continue to strive for improvement and excellence in sustainability performance and reporting.

In closing, I would like to thank my talented and committed colleagues across the world whose knowledge and efforts are responsible for all the progress we have made.

I hope this report proves useful to you in understanding our commitment to acting for a sustainable future.

Tsai Chao Chung, Charles
Chief Executive Officer
Hong Kong, March 2022



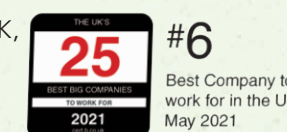
2021 Highlights

Environment

- **Coal Phase Out:**
 - Our businesses in the OECD countries have fully phased out coal-fired generation in favour of cleaner-burning natural gas in 2021.
 - Committed to reducing our coal-fired generation installed capacity from about 53% of our total generation portfolio in 2016 to about 24% by 2023 and phasing out coal at all of our business operations by 2035.
- **Net Zero Commitment:**
 - HK Electric, SAPN, UKPN, NGN, AGIG and AVR have pledged to support net zero commitments.
 - UKPN: first distribution network operator in the UK to have its carbon reduction plan and targets externally verified by the Science Based Targets Initiative (SBTi).
- **GHG Emission Reduction:**
 - 10% reduction in Scope 1 and 2 greenhouse gas emissions intensity compared to 2020.

Social

- Maintained zero work-related fatalities across all our employees.
- Total 553,168 hours of training provided.
- 87.85% of our employees covered by collective bargaining and unionised at the end of 2021 in support of the Group's joining the United Nations Global Compact (UNGC).
- UKPN – named sixth best large company to work for in the UK, and has been in the top 25 for the previous seven years.



Governance

- 19,000 stakeholders engagement activities held in 2021 engaging 223,000 stakeholders among our major business operations.
- Commitment to the United Nations' Sustainable Development Goals (SDGs) and identified 3 SDGs that are closely aligned with our corporate strategies and business priorities.



Sustainability at Power Assets

We aspire to constantly enhance how energy is being generated and delivered to all our markets of operation to create a more sustainable planet for future generations. We also aim to be a positive force in people's lives as a best-in-class employer, supportive partner, and caring corporate citizen operating with the highest ethics and values.



Sustainability Governance

The Group's sustainability governance structure provides a solid foundation for developing and delivering its commitment to sustainability. This is embedded at all levels of the Group, including the Board, the Sustainability Committee and the Sustainability Management Committee, comprising the CEO and elected management members. The Sustainability Committee and the Sustainability Management Committee provide guidance to our businesses to maintain consistency in implementing their own sustainability strategies, managing goals, targets, and reporting processes, strengthening relations with internal and external stakeholders, and ensuring overall accountability.

The Group has formulated separate policies on sustainability, environment, supply chain management, and human rights. These policies are primarily intended to serve as the ultimate guiding principles for sustainability practices within the Group, putting its values into action across the businesses and detailing the Group's commitments to business integrity, people, environment, and communities in which the Group operates.

Top-down STRATEGY

The Board

- Has ultimate accountability for the Group's sustainability strategy, management, performance, and reporting.
- Examines and approves the Group's sustainability objectives, strategies, priorities, initiatives, goals, and targets as well as the corresponding policies and frameworks that support their achievement.
- Our directors or executives are appointed to the boards and management committees of all material investments for overseeing and monitoring the sustainability performance of each business.

Sustainability Committee

- Established as a Board committee.
- Chaired by Mr. TSAI Chao Chung, Charles, Chief Executive Officer and Executive Director. Its other members are Mr. CHAN Loi Shun, Executive Director, and Mr. IP Yuk-keung, Albert, Independent Non-executive Director and Chairmen of the Audit Committee and the Nomination Committee.
- Has an overarching role in supporting the Board on matters of sustainability; overseeing the implementation of the sustainability initiatives of the Group, including reviewing the related policies and practices and assessing and making recommendations on matters concerning the Group's sustainability governance, strategy, planning, and risks.
- In 2021, the Sustainability Committee met twice to review the Group's sustainability plans including the progress towards the UNSDGs and subsequently recommended the Board to approve the Group's joining UNGC in 2022.
- For more information, please refer to the [Terms of Reference](#) of the Sustainability Committee.

Sustainability Management Committee

- Composed of Chief Executive Officer, an Executive Director, Chief Financial Officer, Group Legal Counsel and Company Secretary, and selected members of the Group's management, the Sustainability Management Committee focuses on addressing sustainability issues and policies and driving strategic initiatives across the Group.
- Reports to, and receives feedback from, the Sustainability Committee on a regular basis.
- In 2021, the Sustainability Management Committee reviewed the Corporate Governance/ Sustainability Policies, and conducted materiality assessments and aligned the Group's sustainability practices with appropriate UNSDGs.

Management of Business Units

- Identifies operational-specific sustainability-related risks and opportunities.
- Monitors and tracks progress against agreed targets and initiatives.
- Provides feedback to the Sustainability Management Committee on sustainability-related achievements and progress.

Bottom-up INFORMATION FLOW

Approach to Sustainability

We operate our businesses in a responsible and sustainable way whilst remaining transparent and accountable to our stakeholders. The Group is committed not just to its shareholders, but also to a wide range of stakeholders including employees, customers, suppliers, the local community, professional institutions, non-governmental organisations (NGOs), and related government authorities.

Sustainability Pillars and Policies

The Group's overall sustainability approach and priorities are built on five pillars: the Business, Human Capital, the Environment, the Community, and the Value Chain. Each pillar is supported by Group-wide policies, leadership at the Group level, and collective efforts across its businesses. These five pillars guide the Group in integrating sustainability across all our operations. The Group has policies, procedures, and guidelines in place to support management in addressing material sustainability issues across the Group, as described throughout this Report. These principles are adopted group-wide and implemented by each operating company based on local social, economic, and environmental needs. The execution and compliance are monitored continually through regular management reviews and reporting.

For more information on relevant policies and procedures in place, please refer to the [Corporate Policies](#) on the Group's corporate website.

The Group's Sustainability Pillars

Value Chain

- Run a management system to identify and mitigate supply chain risk.
- Have Supplier Code of Conduct in place, which covers environmental standards for the suppliers' processes, products, or services, child labour, fundamental human rights, working conditions, remuneration, occupational health and safety, and business ethics.
- Work with suppliers and business partners who can demonstrate their commitments to uphold the principles under the Power Assets' Supplier Code of Conduct.
- Develop procedures to monitor suppliers' products, services, and processes.
- Invest in technologies and innovative solutions to enhance customer experience, communication, health and safety, privacy, and protection in our business operations.

Human Capital

- Uphold a high standard of business ethics and the personal conduct of employees.
- Adhere to non-discriminatory employment practices and procedures.
- Provide a safe workplace for all employees and a positive work environment that values the wide-ranging perspectives inherent in a diverse workforce.
- Foster individual growth and achievement of business goals; offer a wide range of training and development programmes, interest courses, and activities.
- Maintain proper systems to ensure internal equity and external competitiveness of staff remuneration and recognition.

Value Chain

Human Capital

The Environment

The Environment

- Comply with or exceed the requirements of relevant laws and regulations to control any greenhouse gas emissions, discharges into water and land, and waste generation.
- Minimise the impact of business activities on the environment and natural resources.
- Develop climate strategy to identify and manage climate risk and implement appropriate innovations and new technologies to capture the opportunities arising from this risk.
- Set targets and review and assess the results regularly to ensure the effectiveness of emissions control mechanisms.
- Monitor and manage the use of resources, including energy, water, and other raw materials.
- Develop and implement environmentally friendly products and processes with potential commercial applications.
- Encourage and provide support for conservation and environmental protection programmes.

The Community

The Community

- Engage with local communities and undertake initiatives catered to the needs and benefits of the communities within which it operates, with a focus on the environment, education, medical, health and elderly care, arts and culture, sports, and disaster relief.
- Educate the public, particularly younger generations, on the importance of energy efficiency and low-carbon lifestyles.
- Implement internal guidelines and controls on donations and contributions to safeguard stakeholders' and shareholders' interests.
- Encourage employees to play a positive and active role in the community.

The Business

- Enhance long-term return for shareholders.
- Focus on sustainable development of its businesses and the communities in which it operates.
- Comply with all relevant and applicable laws and regulations within its operational frameworks.
- Conduct business with uncompromising integrity.
- Safeguard against unfair business practices.
- Achieve a high standard of corporate governance and emphasise a quality board, sound internal control, transparency, and accountability to all stakeholders.

Stakeholder Engagement

Effective stakeholder engagement and collaboration are crucial to our ability to respond to sustainability challenges and opportunities. Given the diversity of the businesses, the Group and the operating companies deal with different stakeholder groups including employees, customers, business partners, suppliers, and investors, as well as with regulatory authorities, NGOs, and the community. We regularly collect their views through various channels, such as meetings, workshops, seminars, interviews, and surveys.

As a multinational business, the challenges we face are broad and complex. The Group and its businesses use stakeholders' inputs to understand shifting market needs, which in turn helps to inform the Group's decision-making in relation to its sustainability practices, initiatives, and disclosures.

In particular, the Group and its businesses actively co-operate with the governments and other industry associations to identify possible decarbonisation pathways and develop industry practices. And the Group is going to join the UN Global Compact, joining other signatories to drive improvements in sustainability.

In response to the net zero transition initiative, UKPN regularly and intensively worked with all local authorities in the development of their Distribution Future Energy Scenarios (DFES) interactive data map, ensuring the tool is useful for all 126 local authorities in planning toward net zero in the UKPN network area.

WWU conducted a research to understand the relative importance of different customer priorities. The findings showed that environmental sustainability is especially important for 18-24 year-olds. Acting on feedback, WWU continued to establish baseline environmental impacts while developing strategies and processes for environmental performance improvement and keep the Environmental Protection Plan at the heart of WWU's actions to protect the environment.

NGN worked with their new Young Innovators Council and progressed 21 actions such as designing a new Education, Skills, and Careers Programme and running a co-designed #ICanBeMe apprenticeship recruitment campaign to improve and invest in projects that deliver benefits to stakeholders.

The figures of stakeholder engagements of in our major operating markets are given below:

Major operating markets	Number of stakeholders engagements held	Number of stakeholders engaged
Australia and New Zealand	1,600	65,000
UK	16,000	53,000
Hong Kong	1,400	105,000
Total	19,000	223,000

Materiality Assessment

To succeed and make a positive impact on society, we need to understand and respond to the changing world around us. Our materiality assessment identifies the sustainability issues that are perceived as being most important to our stakeholders and our businesses.

Our most recent materiality assessment was carried out in 2020; the results continue to represent the main topics raised by stakeholders. For information on the process, please refer to our Sustainability Report 2020.

We use outcomes of the materiality assessment to inform our sustainability approach, strategy, and reporting. This drives us to focus on the risks, opportunities, issues, and impacts that matter most to our stakeholders and which we have the ability to influence.



The material sustainability issues identified were:

Environment	Social	Governance
<ul style="list-style-type: none"> Combating climate change Opportunities in clean technology Preserving the natural environment (including biodiversity, water, effluent and waste) 	<ul style="list-style-type: none"> Human capital development Occupational health and safety (including emergency response) Cybersecurity Supply chain management Community engagement 	<ul style="list-style-type: none"> Corporate governance Business ethics

Contribution to UNSDGs

What Are the SDGs?

The SDGs are a universal blueprint for prosperity for people and the planet, now and into the future. They represent the collective actions the world can take to address the most pressing issues we face as a global community – inequality, injustice, poverty, and climate change.

These global goals recognise the synergies between improving economic prosperity, health, education, and the environment to set society on a transformative path towards a more resilient and sustainable future.

Our Prioritisation Process

While we recognise that our business impacts most of the 17 SDGs to varying degrees, we evaluate our primary contribution by:

- Connecting our long-term targets and annual progress to SDG targets
- Analysing the 169 SDGs underlying targets and connecting them to our material focus areas and future strategic direction

The three goals and eight targets that resulted from this prioritisation represent where Power Assets has the greatest capacity for impact and action. We will continuously review and incorporate additional SDGs relevant to us in the future.



Goal 7 – Affordable and Clean Energy

- Ensure universal access to affordable, reliable and modern energy services
- Increase substantially the share of renewable energy in the global energy mix
- Double the global rate of improvement in energy efficiency

Commitments

Power Assets is committed to providing modern forms of energy with environmentally sustainable and financially affordable options. We are committed to increasing our portfolio of cleaner energy assets.

Objectives:

Decarbonisation:

- Replace or convert coal-fired units to gas-fired units
- Expand renewable energy, waste to energy, renewable natural gas, and carbon capture capacity

Hydrogen economy:

- Blend hydrogen into existing gas distribution networks and ultimately replace natural gas with hydrogen to achieve zero emission
- Expand renewable energy portfolio
- Support communities by providing affordable electricity

Business Units' targets		2021 Status
HK Electric:	Commission offshore LNG terminal in 2022 to secure another source of natural gas	In Progress
	Subsidise 4,000 households for adopting energy-efficient appliances by 2023	In Progress
	Increase renewable energy sources to over 6 GWh/year by 2023	In Progress
	Complete 1,000 free energy audits and subsidise 500 buildings for implementing energy efficiency enhancement projects by 2023	In Progress
WWU: Net zero-ready gas grid by 2035		On Track
AGIG: 10% renewable gas across its distribution networks by 2030 and achieve full renewable gas conversion		On Track
Canadian Power: Acquire a 30-MW wind energy-generation portfolio in 2021		Achieved
Ratchaburi Power: Construct a 980-kW solar photovoltaic project in 2021		Achieved



Goal 9 – Industry, Innovation and Infrastructure

- Develop quality, reliable, sustainable and resilient infrastructure with a focus on affordable and equitable access for all
- Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally technologies

Commitments

- We are committed to making significant investments in sustainable and resilient infrastructure. We aspire to have transformative impacts on the community

Objectives

Smart Cities:

- Roll out smart meters, provide EV charging facilities, and educate the community on sustainability, energy efficiency, and renewable energy

Invest in technology and innovative solutions:

- Digitise electricity networks and develop advanced automated low-voltage distribution

Business Units' targets	2021 Status
HK Electric: Complete full-scale deployment of smart meters by 2025	In Progress
UKPN: Develop solutions to accommodate an additional 2 GW of distributed generation connected to the grid by 2028	On Track



Goal 13 – Climate Action

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters
- Integrate climate change measures into national policies, strategies and planning
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Commitments

- We recognise the urgency to combat climate change and impacts by identifying specific actions for mitigation and adaptation. We are committed to reducing the GHG emissions of our operations.

Objectives

Climate impact assessment and climate strategy:

- Expand renewable energy in the grid and carbon capture, usage and storage
- Efficient operations and Demand-side management

Decarbonisation of gas networks:

- Blending hydrogen into existing gas distribution networks and ultimately replacing natural gas with hydrogen to achieve net zero targets

Modernising and digitising electricity networks

Business Units' targets		2021 Status
HK Electric:	Commission two more new gas-fired generating units by 2023	In Progress
	Reduce CO ₂ e per unit of electricity sold to not higher than 0.6kg/kWh in 2023 from 0.9kg/kWh in 2005	In Progress
	Engage stakeholders on combating climate change and adopting low-carbon lifestyle to organise 1,000 education and promotion activities by 2023	In Progress
UKPN: Reduce carbon emissions across scopes 1, 2, and 3 by 28% by 2028/29, against a 2018/19 baseline, exceeding a well-below 2-degree science-based target		On Track

Business Ethics



Why It Matters

Anti-bribery and anti-corruption are important topics for the industry. As providers of critical infrastructure, utilities have close relationships with government officials as well as suppliers, third-party contractors, and customers. There are potential risks of bribery and corruption in certain parts of the world.

As utilities are heavily regulated, they are subject to investigations and lawsuits by regulatory authorities. We believe it is important to take a proactive and holistic approach to avoid any incidents of bribery and corruption, driven by our own ethos and regulatory obligations. This requires operating companies to develop well-rounded anti-corruption policies and whistleblower programmes as well as training their staff based on the requirements of the Group and local authorities.



Our Commitment

The Group values and upholds the highest standards of business integrity, honesty, and transparency in its overall business activities. The Group has zero tolerance on any form of fraud or bribery and is committed to the prevention, deterrence, detection, and investigation of all forms of fraud and bribery.

The Board holds the overall responsibility for business ethics as an essential part of its corporate governance responsibilities. On behalf of the Board, the Audit Committee and the Executive Directors are responsible for ensuring the effective implementation of internal controls for material fraudulent or bribery activities committed within the Group on an ongoing basis.



How We Work

Governance Policies

We have formulated relevant policies for our stakeholders to outline our expectations and requirements to ensure fair competition across our business operations.

The [Code of Conduct](#) (the “Code”) sets out the professional and ethical standards for its directors and employees to observe in all business dealings, including provisions dealing with conflict of interest, fair dealing and integrity, corruption, political contributions, personal data protection and privacy, as well as requisite reporting of illegal and unethical behaviour. The Code applies to all subsidiaries and controlled affiliates of the Group, where every Director adheres strictly to the Code, including all applicable laws, rules, and regulations within the jurisdictions in which the Group operates. For non-controlled affiliates, employees serving as directors should, to the extent possible, encourage those affiliates to adopt and follow the Code.

Business partners and suppliers of the Group are encouraged to maintain the highest standards of ethical conduct and professionalism in accordance with the [Supplier Code of Conduct](#). They are required to implement appropriate anti-fraud and anti-corruption policies as well as compliance programmes to verify their compliance with the policies. Relevant anti-fraud and anti-corruption clauses are incorporated into the contracts with business partners and suppliers to ensure that they are fully aware of the Group’s requirements.

The [Anti-Fraud and Anti-Bribery Policy](#) outlines the Group’s zero-tolerance stance against bribery and corruption and assists employees in recognising the circumstance that may lead to or give the appearance of corruption or unethical business conduct. It includes provisions dealing with kickbacks, political and charitable contributions, facilitation payments, gifts and hospitality, and procurement of goods and services. It is the Group’s general policy to avoid any form of donations to political associations or individual politicians.

Other policies relevant to ethics and compliance include our:

- [Information Security Policy](#)
- [Media, Public Engagement and Donation Policy](#)
- [Policy on Inside Information and Securities Dealing](#)
- [Whistleblowing Procedure](#)

Communication and Training

The Code forms part of the mandatory induction training which all employees attend upon joining the Group. It is the responsibility of every director and employee to familiarise themselves and comply with the Code. During the year, the Group provided anti-corruption training to the Directors to help them keep abreast of current trends and issues facing the Group. Regularly, tailor-made training on specific topics such as anti-fraud and anti-corruption is assigned to employees based on their role and area of responsibility.

Each of our businesses also provides sufficient training for its employees. For example, a WWU appointed external training provider to lead the instruction of modules on anti-bribery and anti-corruption, fraud, and other corrupt business practices. In 2021, AGIG launched a Learning Management System that is accessible to all employees via its intranet system with modules such as cybersecurity, anti-bribery and anti-corruption, fraud, and other corrupt business practices a requisite for all new employees. Training modules are available to colleagues on the e-learning platform of our operating companies and are assigned as mandatory based on the role of the colleague. HK Electric and SAPN communicated and provided trainings on anti-corruption policies and procedures to board members and employees. In addition, anti-corruption is also covered as part of the HK Electric, UKPN, WWU, SAPN and EDL induction process for new employees.

Ongoing Assessment

Business practices and controls for preventing and combating corruption and other misconducts are continually assessed at both the Group and business unit levels.

At the Group level, an anti-bribery and anti-corruption control assessment is conducted biannually to evaluate the effectiveness of controls for managing bribery risks.

At the business unit level, each operating company conducts a risk-based audit to ensure the focus remains on key risk areas. These audits also consider the design and operating effectiveness of processes and controls. Deficiencies with potential for fraud and other corruption would be covered during the audit.

Whistleblower Programmes

All directors, employees, and other relevant stakeholders are expected to report any potential violation of the Code or other Group policies. Escalation channels are set up to allow reporting of improprieties or business conduct concerns, with the option of anonymous reporting. All reported incidents are treated confidentially, and informants are protected from any retaliation such as unfair dismissal, victimisation, or unwarranted disciplinary action. All breaches are recorded, investigated, and reported to the Board through the Audit Committee, and substantiated violations would result in appropriate disciplinary actions, including termination of employment.

In addition to Group-level processes, each core business derives its own set of internal escalation procedures to cater to its operational needs. Each operating company has its own whistleblowing system and reports to the Group’s Head of Internal Audit. The Internal Audit Department manages the system and reports serious issues to senior management and the Audit Committee.

For example, United Energy provides an independent anonymous 24/7 free service line named Speak-up Anonymous for employees to report on misconduct. To protect employees who report suspected misconduct, United Energy implements a safe reporting mechanism to ensure the confidentiality of anonymous reports. It is available to suppliers, customers, and other third parties. EDL has a Whistleblower Policy, aimed at encouraging internal or external stakeholders to report any misconduct or wrongdoing. Stakeholders can call the confidential, independently managed hotline or approach the Chief Executive Officer, Chief Financial Officer, company secretary, directors, or other senior managers to report questionable matters.



Green Energy for a Sustainable Future

We are committed to protecting the environment and the Earth's climate. We live up to this commitment by transforming the businesses and promoting the changes needed to achieve a low-carbon economy. We are aware that a successful transformation to a low-carbon economy will require far-reaching and permanent structural changes across society. Therefore, our operating companies around the world are implementing initiatives to drive the energy transition and making steady progress on the path towards net zero emissions.

In addition to our focus on climate change and energy transition, we continue our work on other strategic environmental initiatives to protect biodiversity, promote efficient and responsible use of natural resources, and prevent pollution through continuous improvement of technologies and use of the latest clean technologies, processes, and systems to control and minimise environmental impacts.

Combating Climate Change and Opportunities for Clean Technology



Why It Matters

Following the 26th UN Climate Change Conference of the Parties (COP26), which was held in Glasgow from 31 October to 13 November 2021, the participating countries once again reaffirmed the Paris Agreement’s goals of limiting the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C. During COP26, more than 40 countries committed to shift away from coal, which is the single biggest contributor to climate change, by phasing down coal-fired power generation and ending all investment in new coal-fired power generation domestically and internationally. COP26 also emphasised the need for further action to limit the emissions of methane, one of the most potent greenhouse gases. The Global Methane Pledge, officially launched at COP26, aims to catalyse global action and strengthen support for existing international methane emission reduction initiatives to reduce global methane emissions by at least 30% from 2020 levels by 2030.



The solar power system at HK Electric’s Lamma Power Station.

As core participants in the energy sector, we understand that utilities play a key role in achieving the targets adopted by the many governments that are parties to the Paris Agreement. Our core businesses reflect the key emerging energy trends and enable us to help our customers transition to a low-carbon economy.



The wind farm at Dali, in Yunnan province, forms part of our renewable energy portfolio in mainland China.



Our Commitment

Our operating companies are investing in green energy and innovative solutions to support the fight against climate change. Several of our operating companies such as HK Electric, UKPN, NGN, SAPN, AGIG, and AVR have pledged to net-zero commitments. In particular, UKPN is the first distribution network operator in the UK to have its carbon reduction plan and targets externally verified by the Science-Based Targets initiative (SBTi). At the Group level, we are also taking ambitious climate action by planning to set our own SBTi following the criteria.

The Group is also committed to phasing out coal at all of our business operations by 2035. Following the completion of the coal-to-natural gas transition for the Sheerness Generating Station, one of the facilities owned by Canadian Power, in November 2021, our businesses in the OECD countries have fully phased out coal-fired generation in favour of cleaner-burning natural gas.

In addition to the group-wide commitment, each operating company also has its own commitment regarding decarbonisation. For example:

Business Unit	Target	2021 Status
HK Electric	• Reduce CO ₂ e per unit of electricity sold to not higher than 0.6 kg/kWh in 2023 from 0.9 kg/kWh in 2005	In Progress
UKPN	• Reduce 16% GHG emission by 2023 as compared to 2014/2015 for our Business Carbon Footprint on scopes 1 and 2 excluding network losses and scope 3	Achieved
	• Reduce total carbon footprint by 28% by 2028/2029 from a 2018/2019 baseline covering scopes 1, 2, and 3 emissions	On Track
NGN	• Achieve net zero scope 1 and scope 2 emissions by 2031	On Track
WWU	• Ambition to become a net zero-ready carbon emission network by 2035	On Track
	• Ambition to reduce GHG emissions by 37.5% by 2035 versus 2020	
SAPN	• Achieve net zero emissions by 2035	On Track
AGIG	• 10% renewable gas by volume in distribution networks by 2030; and 100% renewable gas by volume in distribution networks by 2050 at the latest, and by 2040 as a stretch target	On Track
AVR	• Achieve net zero in operations by 2050	On Track

To complement the Global Methane Pledge launched at COP26, EDL has been investing in green gas or renewable natural gas (RNG). For example, the Indy High BTU RNG Plant in Indiana, US, converts landfill gas from the South Side Landfill into 680,000 mmBtu of pipeline-quality RNG each year, reducing methane emissions by approximately 17,000 tons per year. Two additional RNG projects, Tessman Road and Wood Road RNG plants, are also underway to process waste gas collected from landfills and provide pipeline-quality RNG, which can be subsequently used in natural gas-fuelled industries and vehicles. EDL also owns and operates a large portfolio of waste coal mine gas and landfill gas-powered stations. EDL captures and extracts methane from waste gas generated from coal mines and landfills, which would otherwise be released to the atmosphere or vented. The extracted methane is then used as a fuel source for heat and power generations, avoiding significant methane emissions.

Meanwhile, WWU has built the 2050 Energy Pathfinder, a simulator for energy systems analysis that enables interchangeable forecast analysis to assess the feasibility of how different energy mixes would work in practice. For example, users can input information about a region, including population size and growth, and the simulator would model the impact of new housing and demographic growth on generation needs, allowing users to anticipate and respond to changes in energy efficiency scenarios and assess the impact on energy demand and carbon reduction.

Our operating companies are taking steps to pursue carbon offset projects and deploy innovative solutions to reduce carbon emissions. Other carbon offset projects and reduction initiatives are detailed in the following sections.

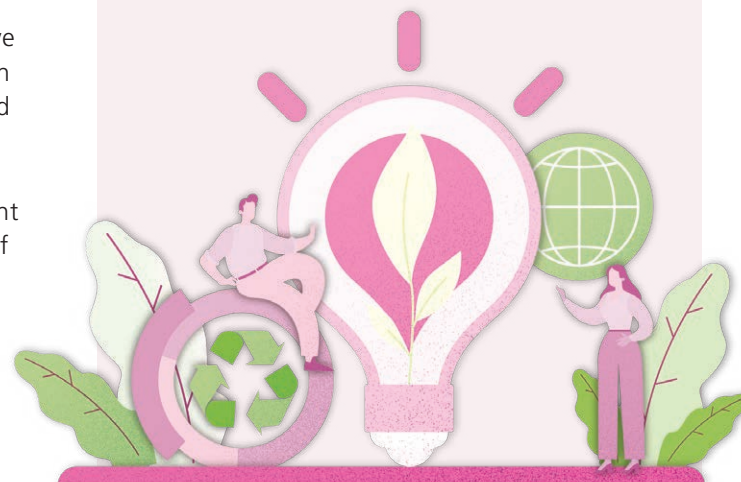
At the same time, we are boosting our commitment to the fight against climate change with the aim of becoming a major player in the energy transition towards a circular, low-carbon, digital economy model through the following strategies:

Goals

To address climate change risk and to capitalise on those opportunities arising from it

Strategy

- Decarbonising the generation portfolio by **replacing or converting coal-fired units to renewable and gas-fired units**, and expanding renewable energy, waste-to-energy, RNG, and carbon capture and utilisation capacity
- Accelerating and supporting decarbonisation by **continually modernising and digitising electricity networks** to accommodate the projected influx of distributed renewable energy sources as well as the anticipated surge in the required charging networks for a massive uptake of electric vehicles
- Decarbonising our gas network by **blending hydrogen and biogas into existing gas distribution networks** and ultimately replacing natural gas with hydrogen and biogas to achieve the net zero targets set by local governments



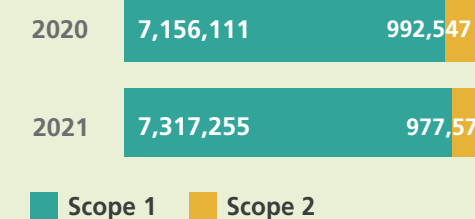
2021 Performance

In 2021, our carbon emissions consisted of 88% Scope 1 emissions and 12% Scope 2 emissions.

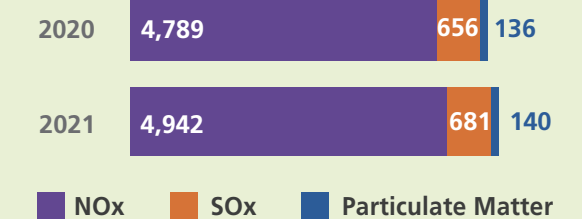
The Scope 1 emissions are direct emission from fuels processed in sources that were owned or controlled by our operating companies and fugitive emissions resulted from gas shrinkage for our gas transmission and distribution companies, which were equal to 7,317,255 tonnes CO₂e in 2021, with a 2% increase from 2020. This is mainly due to an increase in the consumption of anthracite (approx. 46% increase compared to 2020) at the Jinwan Power, which accounted for 32% of the total Scope 1 emissions.

The Scope 2 emissions include the emissions from purchased electricity of our businesses for their own use, and those associated with losses in transmission and distribution networks for our electricity distribution companies. Our operating companies proactively drive a shift to use renewable energy to power its facilities or purchase of certified renewable energy. These ongoing efforts have helped reduce our Scope 2 emissions by 2% to 977,578 tonnes CO₂e when compared to 2020.

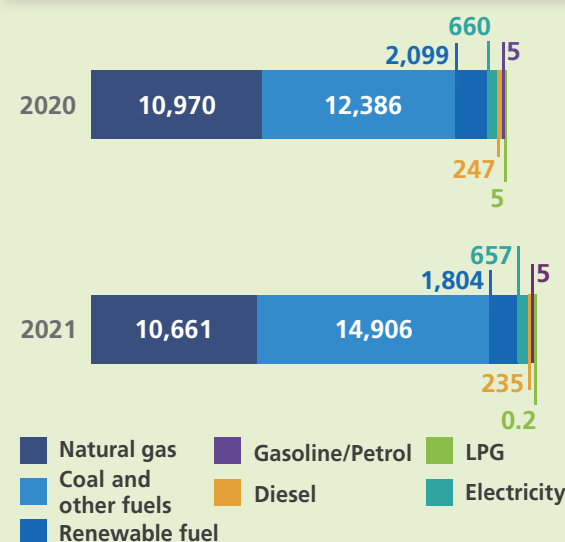
GHG Scope 1 and 2 emissions (tCO₂e)



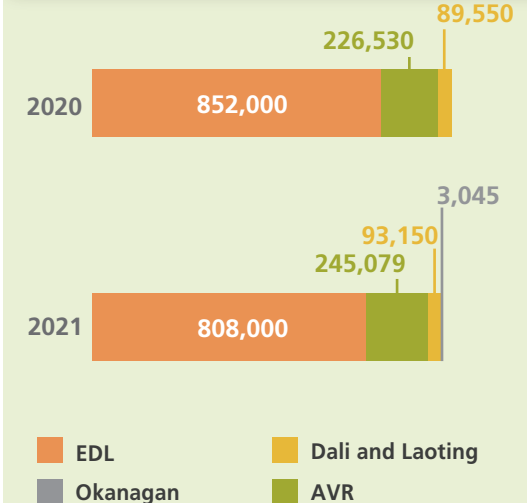
Air emissions (tonnes)



Energy Consumption ('000 MWh)



Carbon Offset (tCO₂e)¹



¹ The carbon offset data are derived from the emissions reduction/abatement provided by our projects. Relevant guidelines or standards in international or local context were used for the estimation of carbon offset. For the carbon offset data that are not submitted as part of a carbon trading scheme, those data are not verified or reviewed by an external party.



How We Work

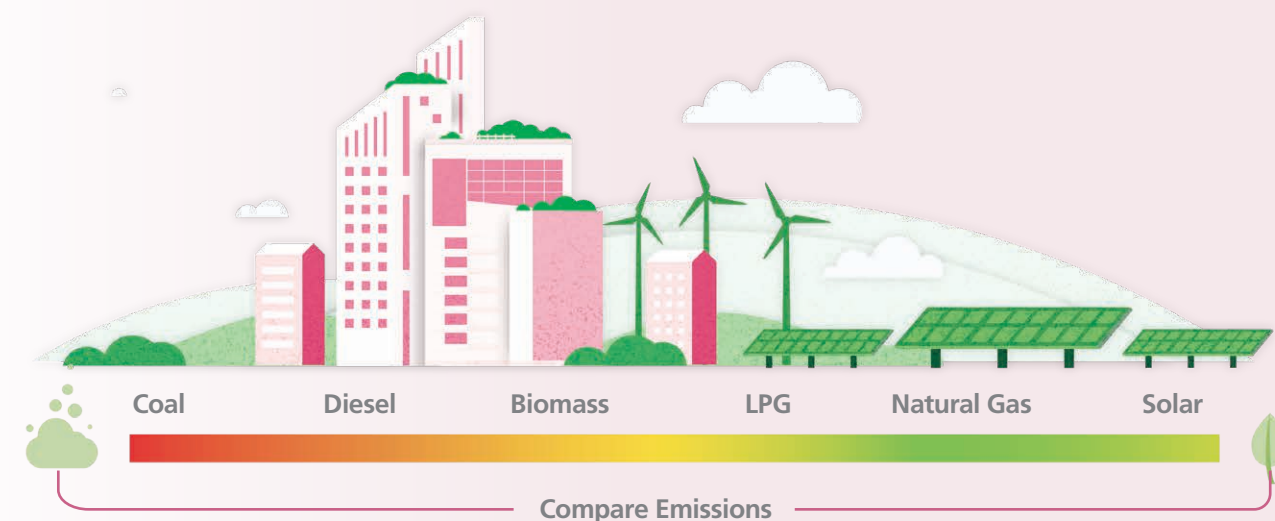
The transition to a low-carbon economy poses challenges, but also creates opportunities for us to grow our business. By pursuing a corporate strategy that takes climate change into account, we are supporting the global effort to contain global temperature rise and the transition to a low-carbon economy by decarbonising the generation portfolio, modernising and digitising electricity networks, and blending hydrogen and biogas into existing gas distribution networks. In addition, our operating companies implement various measures to help customers improve energy efficiency.

Enabling Carbon Offsets and Reduction

Reducing the environmental impacts associated with our businesses is a strategic objective for us. Our business units have been actively investing and engaging in projects that reduce and offset carbon emissions. This includes projects on coal-to-natural gas conversion, adopting carbon capture and storage technologies, utilising design to handle biogas, hydrogen and renewable natural gas, and expanding our renewable energy portfolio.

In coal-to-natural gas conversion, Power Assets is committed to further reducing our coal-fired generation by switching to natural gas in the interim towards net-zero. HK Electric has successfully synchronised a new 380-MW gas-fired unit in November 2021, and Canadian Power has fully phased out coal-fired generation by converting its Sheerness 800-MW plant to natural gas, reducing up to half of the GHG emission intensity.

Why natural gas?



Coal-to-gas switching is an integral part of the energy transition. Natural gas is a cleaner alternative to traditional fuels. As the cleanest hydrocarbon, natural gas produces 90% less air pollutants and 50% less CO₂ compared to coal when used in electricity generation.

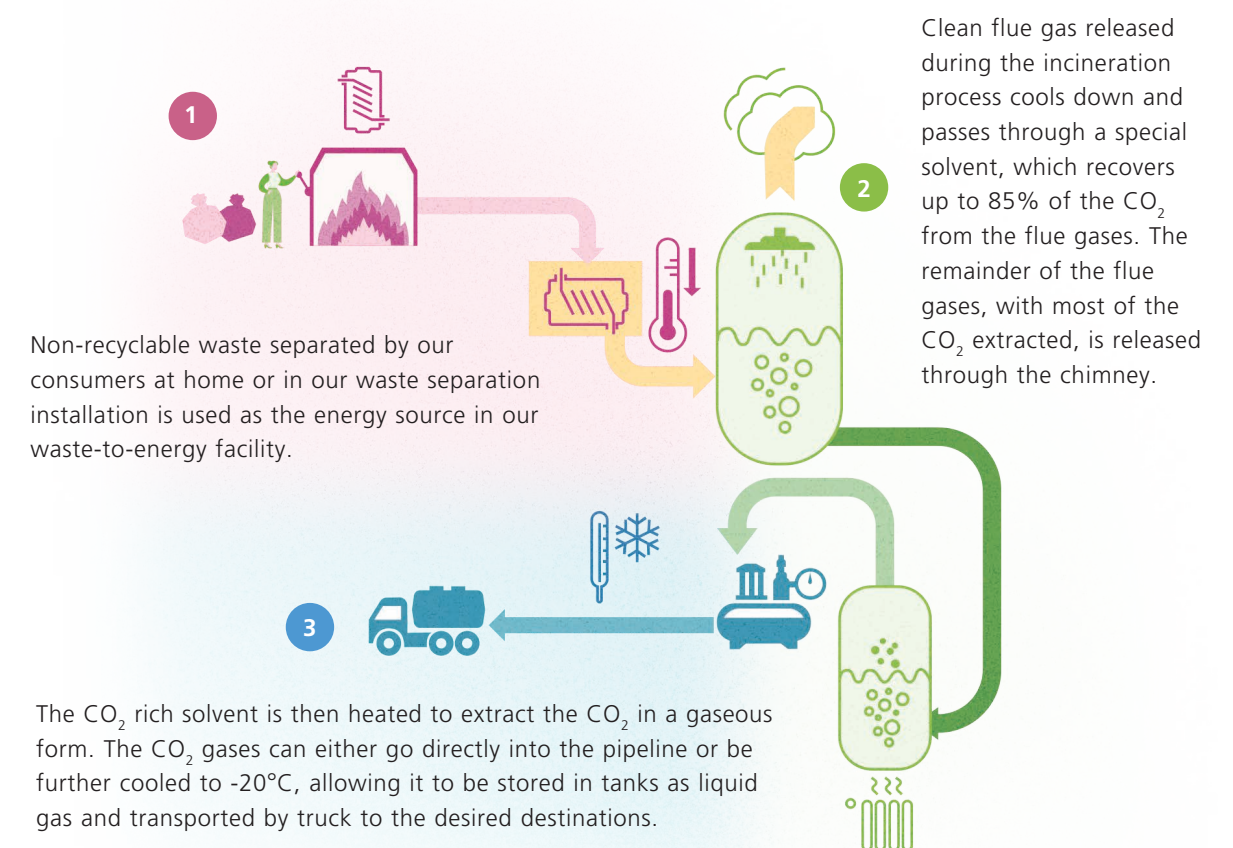
A gas-fired power generating unit also takes much less time to start and stop than a coal-fired power generating unit, so its flexibility makes it a good partner to intermittent renewable sources of energy such as solar and wind.

Carbon Capture and Utilisation

In the circular economy space, AVR recovers the CO₂ from incineration and uses the captured CO₂ to supply to nearby greenhouses for horticulture. AVR supplies these growers each year, meaning they

no longer have to use diesel and gasoline engines to produce the CO₂ for growing crops. Building a similar CO₂ capture plant in Rozenburg is high on AVR's agenda.

How does the CO₂ capture plant work?

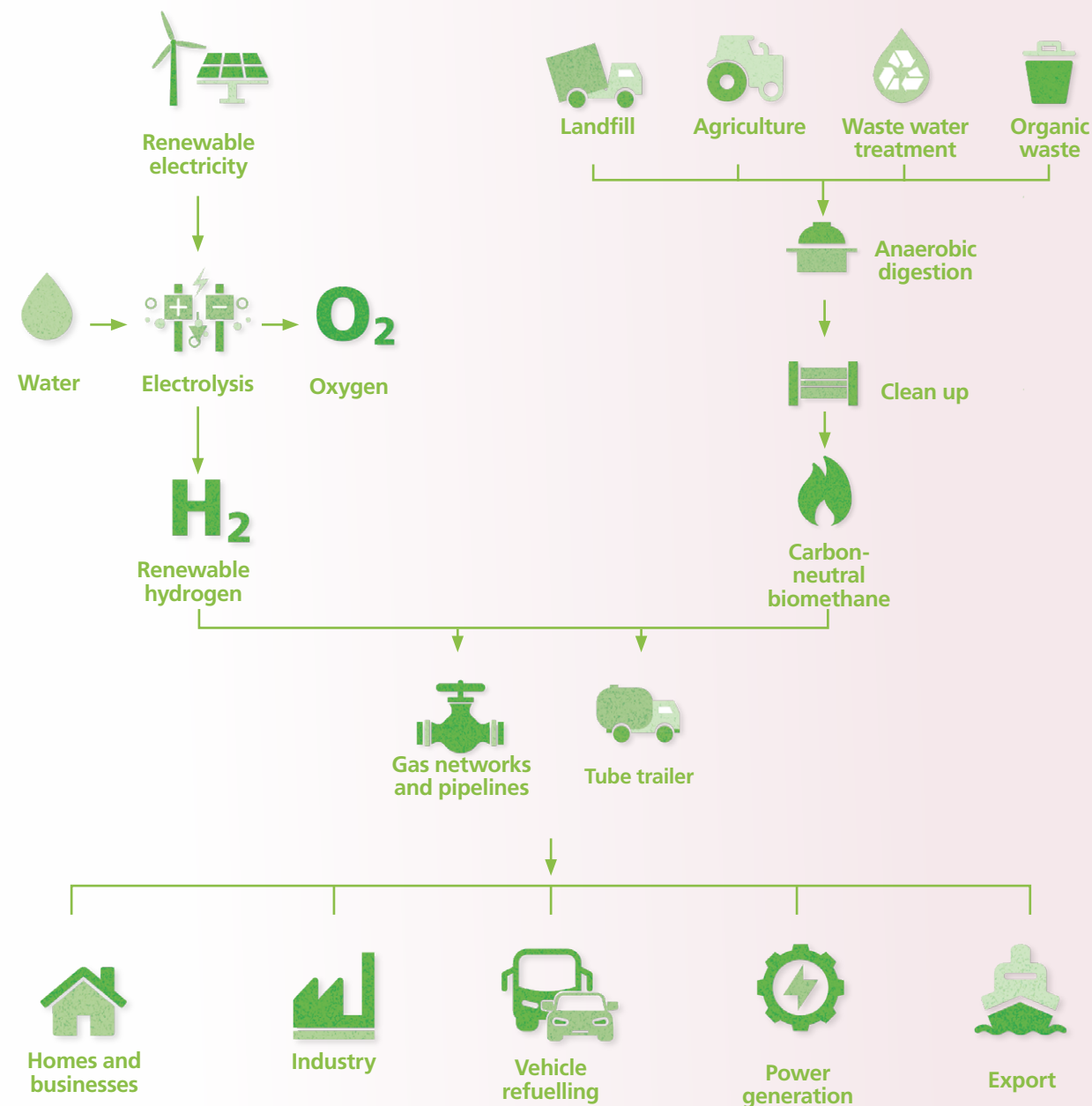


In addition, EDL's Clean Energy sites across the globe help its landfill and coal-mine customers capture and convert methane into electricity or renewable natural gas and have collectively abated, avoided and displaced over a further 4 million tCO₂e. Instead of emitting the methane into the atmosphere, which can be up to 25 times more potent than CO₂, EDL gives this methane a second life by converting them into renewable natural gas (RNG), which can be used in natural gas-fuelled industries and vehicles as compressed natural gas (CNG) or liquefied natural gas (LNG).

Our business units have been accelerating the use of hydrogen, which only emits water when burnt. Our gas distribution companies such as NGN, WWU and AGIG have been investing heavily into the hydrogen space which spans across the entire upstream of the hydrogen value chain, including production, supply to customers by pipelines and trailers. NGN and WWU have also allowed for the injection of biogas into their gas networks.

What is renewable gas?

Renewable Gas is a clean energy source which does not produce any additional emissions when you burn them.



Activities involving renewable gas focused on the development of green hydrogen and biomethane. Green hydrogen does not contain any carbon and is produced using water and renewable electricity,

meaning the process is carbon-free. Meanwhile, biomethane harnesses the energy potential from organic materials such as agricultural waste and sewage, supporting the circular economy.

Finally, HK Electric owns and operates a 1.1-MW solar power system and an 800-kW wind turbine. The company also facilitates the development of distributed Renewable Energy (RE) power systems in its supply areas through its Feed-in Tariff Scheme. Its customers can contribute to combating climate change by subscribing the RE generated from these sources and will be presented RE Certificates accordingly. In 2021, HK Electric's customers fully subscribed the 5.8 GWh of green electricity generated from the RE sources, avoiding about 4,000 tCO₂e emissions.

Our wind farms at Dali and Laoting generated a total of 213 GWh of renewable electricity in 2021. The renewable energy generated by the two wind farms has cumulatively reduced 207,000 tCO₂e of carbon emissions.

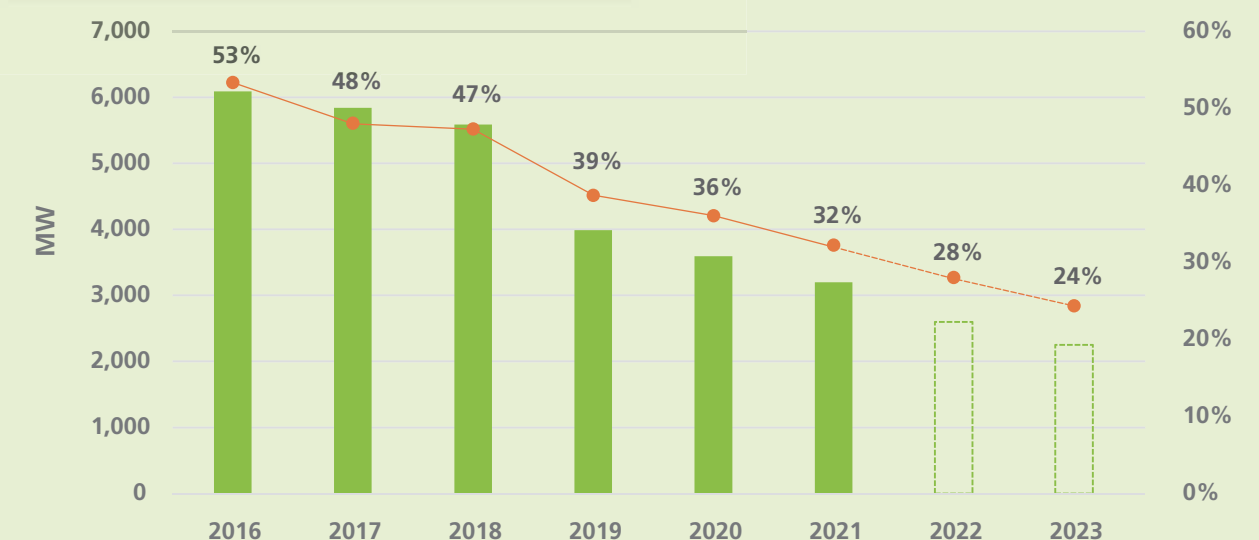
Decarbonising the Generation Portfolio

The Group is committed to reducing emissions of GHG and other air pollutants within its operations and supporting the move to a low-carbon future through innovation and adoption of the latest technology and processes alongside environmentally friendly energy sources. Our business operations help tackle climate change through the following initiatives:

Replacing coal-fired generating units with renewable and gas-fired units

Switching from coal to natural gas provides a clean, reliable, and cost-effective way to reduce carbon emissions. Power Assets is committed to reducing its coal-fired generation installed capacity from about 53% of its total generation portfolio in 2016 to about 24% by 2023. We are on track with our decarbonisation plan and have reduced 2,890 MW of coal-fired power generation capacity since 2016. Following the coal-to-gas conversion of our Sheerness Generating Station in Canada in 2021, the Group has ended coal power generation in OECD countries with non-OECD countries following suit by 2035. As at the end of 2021, coal-fired generating facilities represented less than 5% of the Assets.

Coal-fired generation installed capacity



HK Electric: Moving one step closer to carbon neutrality with synchronisation of L11



HK Electric has been migrating to a low-carbon operation through investments in cost-effective green technologies and related facilities. Following the commissioning of gas-fired unit L10 in 2020, it took a major step forward in its transition from coal-to-gas generation with the successful synchronisation of another new gas-fired unit, L11, in November 2021. Full commissioning is expected in May 2022, allowing HK Electric to retire an older gas-fired unit and two coal-fired units within 2022. HK Electric will also commission another new

gas-fired unit, L12, in 2023 to further boost the gas-fired generation and will gradually phase out the remaining coal-fired units by the early 2030s.

HK Electric is also developing an offshore wind farm, with installed capacity of not less than 150 MW, located southwest of Lamma Island, targeting for commissioning by 2027, and which has the potential to generate around 400 million kWh of zero-carbon electricity annually.

Canadian Power: Advancing the off-coal conversion in Alberta



Sheerness Generating Station's gas receiving facilities

The 800-MW Sheerness Generating Station fully phased out coal-fired generation in favour of cleaner burning natural gas by end of 2021. The transition from coal to natural gas is expected to reduce about 45% to 50% of GHG emission intensity at the station. Emissions of nitrous oxides will also be reduced, while emissions of sulphur dioxide, particulate matter, and mercury will be eliminated, resulting in additional air quality improvements within Alberta.

Expanding renewable energy portfolio

The Group has been actively looking into suitable investment opportunities in clean energy and providing necessary support, including funding to our investments to expand our renewable energy portfolio. Our operating companies have also launched different initiatives to connect renewable energy to the grid.

HK Electric purchases all electricity generated by customers' grid-connected renewable energy power systems (REPS) at Feed-in Tariff (FiT) rates. In 2021, about 5.8 GWh of zero-carbon electricity was generated by REPS of FiT customers and HK Electric's own REPS. They were fully subscribed as Renewable Energy Certificates by HK Electric customers to offset their Scope 2 carbon emissions.

The Group has also acquired its first renewable energy project in Canada in the form of two wind power facilities located in the Okanagan region of British Columbia in 2021. The two wind farms, which consist of 10 wind turbines with a total capacity of 30 MW, sufficient to power approximately 9,000 homes, began operating and generating clean, renewable electricity since 2017.

EDL is also growing our portfolio of world-class wind and solar projects across Australia by investing in hybrid renewable projects for off-grid locations. Hybrid renewable projects utilise renewables such as wind or solar, combined with battery storage and enabling technologies, to minimise or replace traditional energy sources such as diesel or gas.



The Okanagan wind farms, acquired in 2021, has a capacity of 30 MW.



EDL: Delivering sustainable energy for off-grid locations

EDL owns and operates the Agnew Hybrid Renewable Microgrid, Australia's largest hybrid renewable energy microgrid and the first in the country to utilise wind generation on a large scale at a mine site. This innovative hybrid renewable power station consists of a 18-MW wind farm, a 4-MW solar farm, a 13-MW battery system, and an off-grid 21-MW gas/diesel engine power plant to deliver renewable energy to the mine without compromising power quality and reliability. In favourable conditions, the power station could deliver up to 85% of the mine's power requirements with renewable energy.



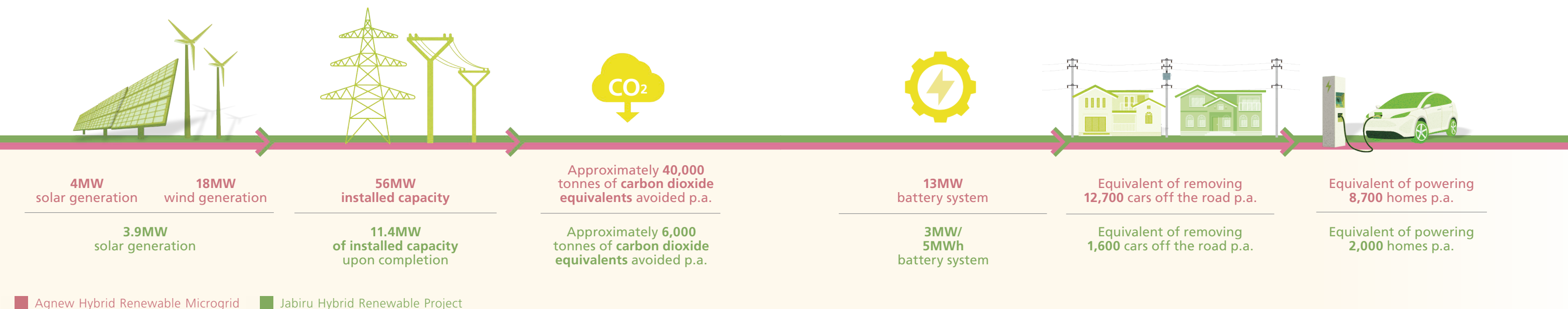
∞ The Agnew Hybrid Renewable Microgrid comprises wind, solar, gas and diesel generation and battery storage.

EDL: Delivering sustainable energy for remote township

In addition, EDL was contracted in 2021 by the Government of the Northern Territory of Australia to deliver the Jabiru Hybrid Renewable Project to power the remote, off-grid township of Jabiru. The project will integrate a solar farm and battery with a diesel power station to balance sustainability with reliability. Upon completion in early 2022, the hybrid renewable power station will provide Jabiru with at least 50% renewable energy over the long term, helping the remote township transition to a tourism and services hub and contributing to the Northern Territory's 2030 50% renewable energy target.



∞ Jabiru Hybrid Renewable Energy Project's battery and diesel power station



Carbon Capture, Use and Storage (CCUS)

In a circular economy, the use of products and materials is maximised and value destruction is minimised. Utilising residual and unrecyclable waste is a key step towards enabling climate-neutral operations. Our group continues to investigate ways to give these waste and carbon a second life.

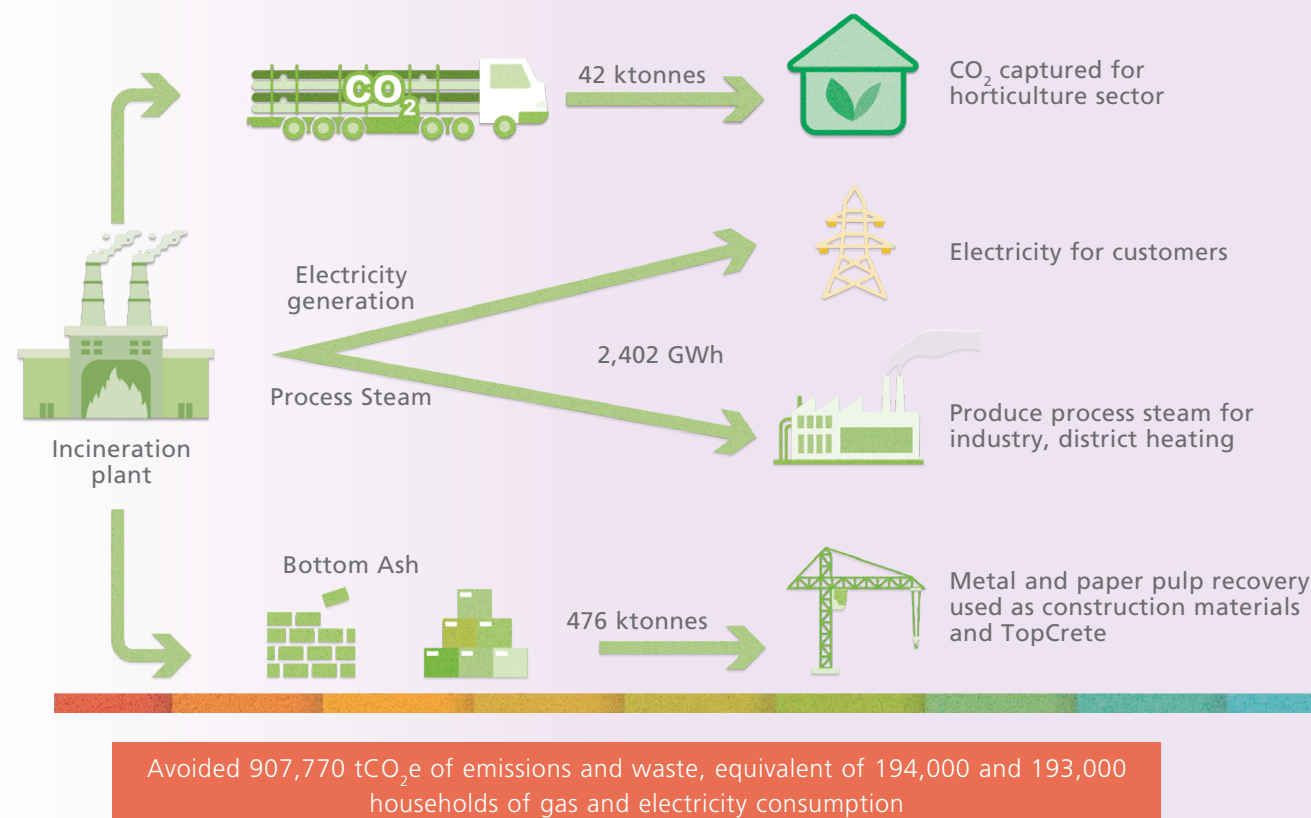
AVR: Enabling climate-neutral operations through carbon capture and supply

AVR's purpose is to take residual, unrecyclable waste and, with its expertise in smart incineration technology, use it to create electricity, heat, steam as well as new process raw materials.

AVR's operations replace energy that would have been generated through fossil fuels. AVR also avoids CO₂ emissions by recovering raw materials such as the metals and minerals from bottom ashes, TopCrete from paper sludge processing, and packaging material from the separation plant.

AVR's Waste-to-Energy Plant in Duiven has included a unique CO₂ capture plant for recovering CO₂ from the flue gases released during incineration of residual waste and using the captured CO₂ as a raw material for sustainable concrete or as a coolant in fire extinguishers. Currently, AVR supplies the captured CO₂ to local greenhouse horticulture companies.

During 2021, 2,255 ktonnes of unrecyclable waste was utilised.



Modernising and Digitising Electricity Networks

Digital technologies and smart networks play a central role in facilitating more reliable, interconnected and distributed power systems. Innovation solutions are needed to help connect more renewable energy and enable new technologies like battery storage and virtual power plants.

UKPN: Creating matrix-like simulation to enhance energy capacity and accommodate more low-carbon technologies

As more renewable energy sources connect to the network, having exact data and forecasting tools at all voltages allows us to plan ahead and invest strategically to more efficiently manage the network and connect more low-carbon technologies such as EV chargers and heat pumps. UKPN's Envision project is developing a software-based machine learning tool to model demand and analyse how, when and where power is flowing through the network when demand for electricity is high. This project is a key step to widening network flexibility and building a smart grid that enables cleaner, greener energy resources to connect quicker and at a lower cost which can help release 70 MW of electricity capacity by 2028, equivalent to providing 1,400 new rapid electric car chargers.



SAPN: Upgrading the voltage management systems to facilitate more solar generation



As part of its ongoing Enhanced Voltage Management programme, SAPN has completed upgrading the voltage management systems at 138 major substations supporting about 790,000 (80%) of South Australia's electricity customers. As South Australia has more than 300,000 customers

with solar systems capable of generating about 1,800 MW of energy, the deployment of new voltage control measures helps regulate voltage levels throughout the day and year to facilitate more solar generation on the electricity distribution network. For example, during those periods of high solar export in the middle of the day, the voltage management systems can keep the volts down to ensure customers can continue to export their excess power to the grid.

SAPN will continue to develop and implement a range of mitigation and adaptation initiatives to facilitate the uptake of renewable energy sources within the network to reduce GHG emissions from distribution losses. These initiatives also align with SAPN's goal of doubling the amount of solar power on the network by 2025 and ultimately achieving net zero emissions by 2035.

Blending Renewable Gas into Existing Gas Distribution Networks

Renewable and carbon-neutral gases such as hydrogen and biomethane are new energy solutions that are key to the decarbonisation process. As a member of the Hydrogen Council, we are working actively with industry peers along the entire production chain and policymakers to demonstrate and promote hydrogen as a reliable, clean, and safe fuel for achieving the net zero targets set by various jurisdictions. By blending and ultimately replacing natural gas with renewable gas, the existing infrastructure can be used to supply renewable gases, enabling a smooth transition to a low-carbon future.

Since August 2021, NGN has started blending up to 20% of hydrogen into its existing natural gas network at Winlaton as part of a trial project run by HyDeploy, with approval from the Health and Safety Executive. The project is expected to last around 10 months and is a vital step towards using hydrogen in the public gas networks. HyDeploy is a pioneering hydrogen energy project designed to help reduce carbon emissions in the UK and reach the government's net zero target for 2050. Results from the HyDeploy projects will be submitted to the government to form policies about the future of hydrogen gas blending.

Meanwhile, WWU has regulatory approval for injecting bio-substitute natural gas containing up to 1% hydrogen into its existing gas network in Swindon. Injecting gas with up to 1% hydrogen



WWU is reducing emissions by injecting hydrogen to its grid.

into the existing gas network will reduce the carbon emissions by up to 5,000 tonnes. This is also an important milestone in demonstrating the use of an existing safe and reliable gas network in the UK to transport hydrogen.

As we move towards making networks hydrogen-ready, we are replacing the old ductile iron pipelines of our gas distribution networks. NGN, WWU, and AGIG have replaced 496 km, 329 km, and 415 km of old gas pipelines respectively during 2021. Replacing old gas pipelines also helps reduce fugitive emissions of methane from the networks, improve the reliability of gas supply, and lower the public risk associated with gas leaks.



AGIG: Taking active steps to sustainable gas delivery

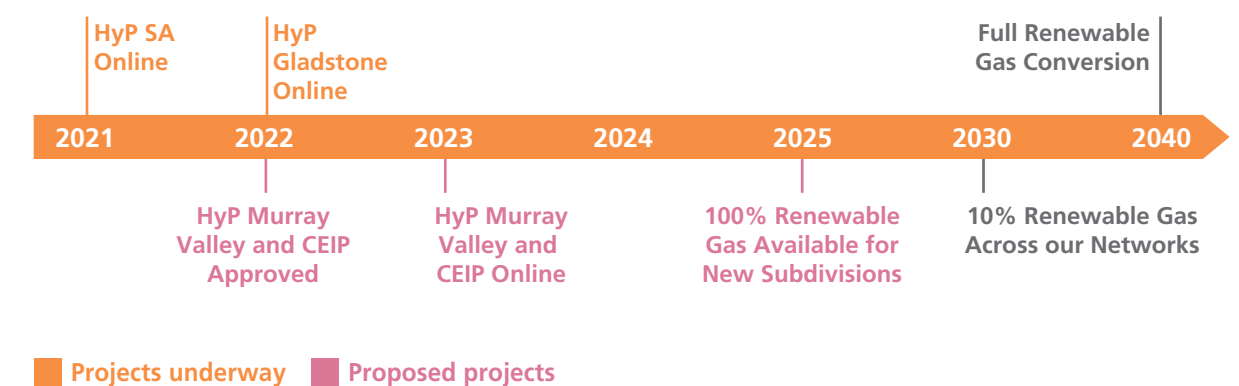
In 2021 AGIG commenced operation of Hydrogen Park South Australia (HyP SA), Australia's largest electrolyser and the first to deliver a renewable hydrogen blend to customers on the existing gas network. HyP SA is located in metropolitan Adelaide, and produces renewable hydrogen using a 1.25-MW electrolyser which uses renewable electricity to split water into hydrogen and oxygen. The renewable hydrogen is blended with natural gas at volumes of up to 5% and supplied to approximately 700 homes via the existing gas network. The project reduces the amount of carbon in the local gas network, and has laid the foundation for much larger emission reductions target as they target 10% renewable gas by volume across all of their distribution networks by 2030.

Following the success of HyP SA, AGIG is developing HyP Gladstone, which is planned to deliver Australia's first whole of gas network decarbonisation project with volumes up to 10% renewable hydrogen blended with natural gas. Work is currently focused on securing the site and development approvals, and appointing partners to commence construction. Subject to timely approvals, AGIG plans to deliver blended gas to the network in the latter half of 2022.

Hydrogen Park Murray Valley is the next step in AGIG's renewable gas journey, building on HyP SA and its plans for HyP Gladstone. The 10-MW electrolyser could use water from the treatment plant and renewable electricity from the grid to produce renewable hydrogen. The renewable hydrogen would then be blended with natural gas, at volumes of up to 10% for supply into the existing gas distribution networks across Albury and Wodonga, delivering a cleaner energy future to more than 40,000 business and residential connections. Industrial gas users would also receive the renewable gas blend.



Stretch target: Distribution networks transitioning to renewable gas by 2040



WWU: Encouraging entry of renewable gas into existing gas network

To promote the entry of renewable gases like hydrogen and biomethane into the gas network, WWU encourages local developers who are considering building anaerobic digestion plants or other facilities to submit enquiries on connecting their gas facilities to WWU's network. After receiving enquiries and confirmation from the gas producers, WWU will carry out a capacity study to evaluate suitable network connection points and whether there is available capacity to take in the gas. If entry of renewable gas into the existing gas network is feasible, the gas producers will be required to submit a proposal to WWU and carry out a series of assessments to ensure compliance with industry regulations. After obtaining relevant approvals and completing the required testing of the gas facilities, the gas producers will have permission to inject gas into WWU's network.



WWU storage tubes for renewable gas

WWU is committed to playing its part to help the UK get to net zero carbon emissions by 2050. Currently, WWU has 30 power stations connected to its network to support renewables like wind and solar power, while 19 green gas sites are injecting renewable gas to power 130,000 homes. WWU is also participating in the industry-wide Hydrogen Grid R&D Programme to plan the transition of UK gas networks to transport hydrogen.

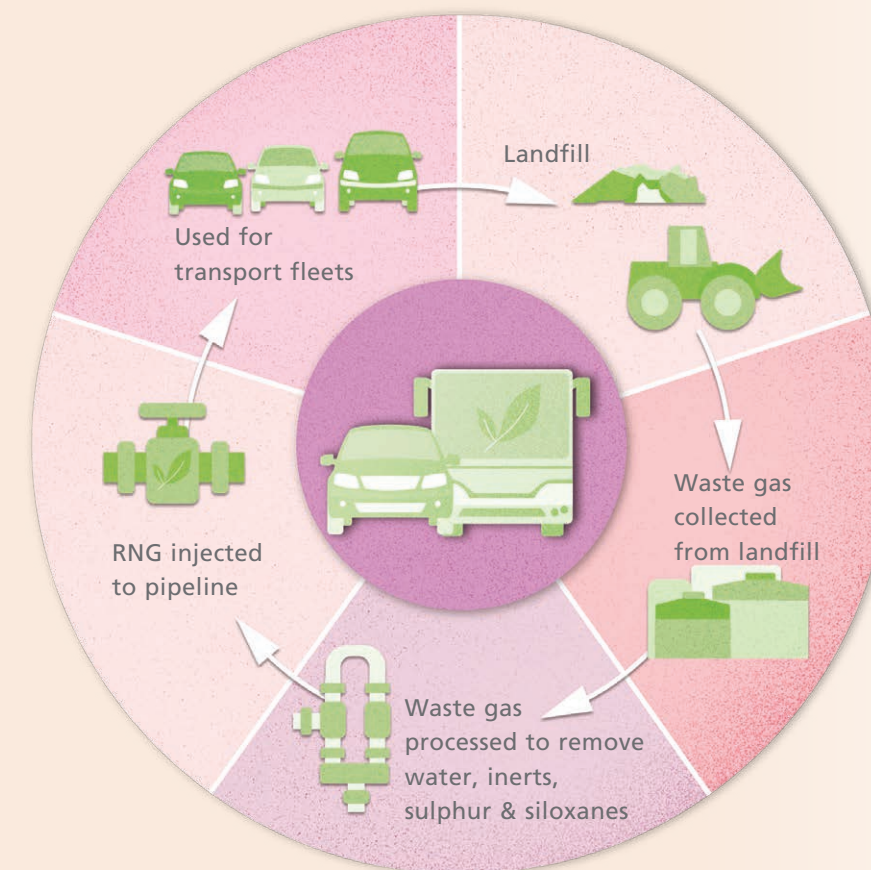
EDL: Enabling the renewable natural gas energy cycle

As part of a joint venture with Kinetrex Energy and South Side Landfill, EDL is the operational partner of the Indy High BTU Renewable Natural Gas (RNG) Plant, the largest RNG plant in Indiana, USA. The plant converts the waste gas collected from the landfill into pipeline-quality RNG with an annual production capacity of 680,000 mmBtu. When used in transport, this waste gas displaces about eight million gallons of diesel. The RNG is currently delivered to Kinetrex Energy, which turns the RNG into LNG, and is subsequently used for transportation fleets.

The Indy High BTU RNG Plant helps reduce approximately 41,000 tonnes of carbon dioxide emissions and 17,000 tonnes of methane emissions per year – equivalent to removing up to 19,000 passenger cars from the roads each year. With the recovery of waste gas from the landfill, the plant also enables a renewable natural gas energy cycle.



Carbon dioxide removal system



Helping Customers with Energy Efficiency

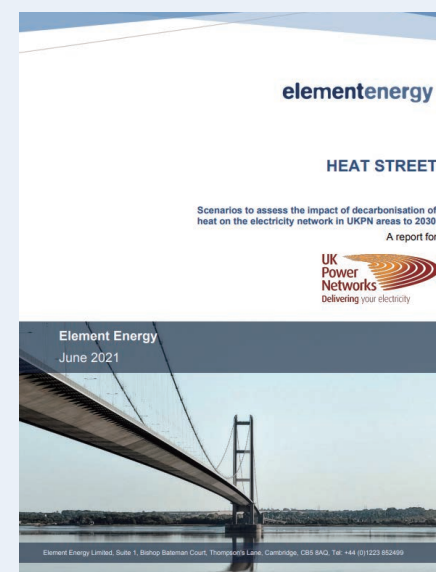
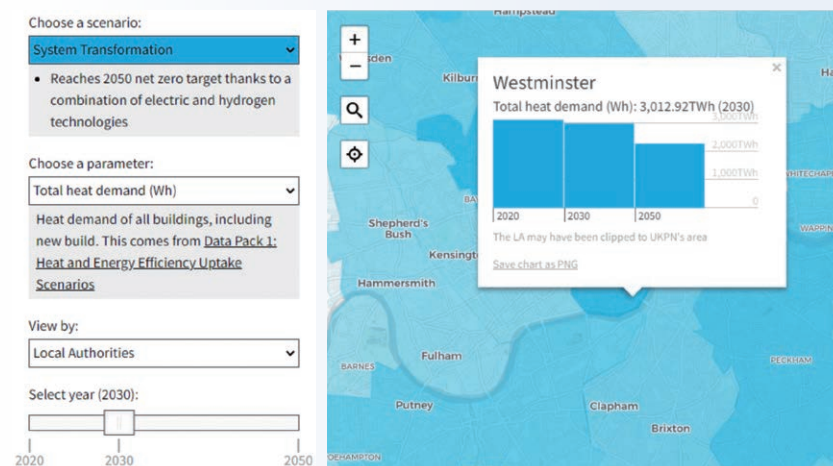
Investing in energy efficiency remains a cornerstone in energy transition, as it acts as a brake on peak demand and mitigates the need for additional infrastructure. We continue to support governments in different jurisdictions to turn into smart cities by rolling out smart meters, providing adequate EV charging facilities, and educating the community on sustainability, energy efficiency, and renewable energy.

Under HK Electric's Smart Power Services, various programmes have been put in place to educate customers about energy efficiency. In 2021, HK Electric completed 210 free energy audits for non-residential customers, subsidised 108 buildings for implementing energy efficiency enhancement projects, and organised 350 educational and promotional activities on combating climate change and adopting a low-carbon lifestyle.

UKPN: Supporting the transition to decarbonised heat by analysing energy efficiency trends

In order to reach net zero by 2050, major infrastructure decisions need to be made to support the uptake of low-carbon technologies. UKPN's Heat Street project is a first-of-its-kind research to help communities map out their net zero carbon future at street level. The project carried out a study reviewing a broad range of energy efficiency measures, options for decarbonising heat, uptake modelling, and the impact on the UKPN network. UKPN also hosted workshops with local councils, businesses, academics, and consumer groups to ensure the study accurately reflected the current market and emerging trends regarding energy efficiency and low-carbon heating technologies. The full report of the Heat Street project was released in June 2021.

The project took a data-driven look into the future to help local authorities and community energy groups forecast and plan for the deployment of energy-efficient and low-carbon heating solutions. The findings from this project also provides an opportunity for UKPN to support the deployment of energy efficiency measures to reduce the cost of network reinforcement associated with the electrification of heat to 2050.



Understanding Climate-related Risks and Opportunities

Climate change is a priority and one of our strategic drivers, as it can directly affect the sustainability of our business. Reflecting the Group's commitment to climate-related disclosures, we are planning to align our disclosures following the recommendations from the Task Force on Climate-Related Financial Disclosure (TCFD) to develop, monitor, and disclose climate-related metrics and targets, financial impacts, and strategies.

The following provides an overview of how we manage climate-related risks and opportunities referencing the four thematic areas of the TCFD recommendations. We will continue to review and conduct studies on this matter to improve our management approach and disclosures.



Governance

Inadequate management of climate change and its associated risks can lead to substantial losses for the Group. To enhance our governance, the Sustainability Committee was established as a Board committee, overseeing the Group's sustainability issues, including climate-related issues. At the management level, there is a Sustainability Management Committee chaired by the CEO, which supports the Sustainability Committee in addressing sustainability issues and policies and driving strategic initiatives across the Group, including assessing and managing climate-related risks and opportunities.



Strategy

Action on climate change is embedded in our business strategy and reflected in our Sustainability Policy and Environmental Policy. As detailed in the section "Combating Climate Change and Opportunities in Clean Technology", we have developed the following strategies to address climate-related risks and capitalise on those opportunities arising from it: decarbonising the generation portfolio, modernising and digitising the electricity networks, blending renewable gas into existing gas distribution networks, and helping customers with energy efficiency.



Risk Management

The Group is exposed to risks related to extreme weather events, failure of the ecosystem to adapt to climate change, and natural catastrophes that can cause physical threats in specific countries and regions, as well as economic hazards associated with climate change transition. The countries and regions in which the Group has operations may be vulnerable to water stress, prolonged periods of drought, heat waves leading to wildfires, or physical effects of global warming such as severe tropical cyclones and flooding.

These climate-related risks are reviewed regularly by the Sustainability Committee and Sustainability Management Committee. The identification, assessment, and management of these risks are also incorporated in our Enterprise Risk Management framework. The framework provides top-down and bottom-up approaches to identify and manage the Group's key risks in an effective manner, including material emerging risks at corporate and business unit levels. More details are available in our Annual Report.



Metrics and Targets

The Group has a long-term plan in place to address climate change by decarbonising our generation portfolio to reduce GHG emissions, help slow global warming, and reduce the physical impacts of climate change. The Group is embracing the hydrogen economy with business plans in place in some of its operations for zero-carbon readiness in 2035 to achieve a carbon-free vision for 2050.

Preserving the Natural Environment



Why It Matters

Preserving biodiversity is extremely important to the power industry. Increasingly, utilities around the world are subject to extensive environmental impact assessments and checking by local regulators for project approval.

The possible negative impacts of existing assets and infrastructure projects such as power plants, transmission towers and wires, and oil and gas pipelines and oil tanks on the surrounding ecosystem are subject to the scrutiny of regulators. Therefore, careful project planning, design, and operation are essential for the Group to minimise its impact on the local ecosystem and biodiversity.



Our Commitment

We are committed to protecting the environment and biodiversity, and supporting sustainable development by conducting our business in an environmentally responsible manner.

We aim to minimise the impact of our operations on the environment while addressing the global concern about climate change. We comply fully with all applicable laws and regulations and endeavour to integrate environmental considerations into all aspects of our business operations.

As a player in an essential utility sector in numerous markets around the world, we are also committed to supporting local governments in achieving the goals set by the United Nations Framework Convention on Climate Change. For more information, please refer to “Combating Climate Change and Opportunities for Clean Technology” on pages 24 to 43.



How We Work

Environmental Management System

Power Assets is implementing an Environmental Management System (EMS) with the aim of contributing to the ‘environmental pillar’ of the company’s sustainability development. This EMS serves to ensure continual environmental improvement, monitor compliance with relevant laws and regulations, fulfil supply-chain requirements, promote staff environmental awareness, and increase financial savings resulting from resource saving and cost reduction. Most of our operating companies have an EMS, and details by company are provided below.

Business Units	No. of facilities with ISO14001 or other EMS certificates	No. of external environmental audit conducted during 2021
HK Electric	3	3
NGN	13	1
WWU	1	2
Seabank Power	1	1
SAPN	1	1
VPN	16	10
EDL	52	3
Ratchaburi Power	1	1

Efficient Operation

Energy management

Since 2015, NGN has been undertaking a programme of refurbishing our portfolio of offices and depots. As part of this refurbishment programme, NGN has incorporated measures to improve property energy efficiency, including energy efficient lighting and lighting sensors and the provision of energy-efficient electrical equipment such as monitors and refrigerators. For example, NGN calculated the design for the refurbishment of its head office at Thorpe Park, Leeds to reduce the building energy consumption by 28%. Its carbon emissions associated with gas and electricity usage in offices and depots has reduced from 2,304 tCO₂e in 2018 to 1,250 tCO₂e in 2020/21 (-46%). The renewable energy has been sourced from wind farms and accounts for 90% of NGN’s total energy consumption.

Jinwan Power has installed a second steam supply pipeline to Gaolan Industrial Estate. Its steam capacity will increase by 10% from 2022, whereby the thermal overall efficiency can be further improved.


Use of renewable energy

Ratchaburi Power is facilitating the building of rooftop solar panels and has fully commissioned a 980-kW-rooftop solar farm spreading over eight ancillary buildings during the year. The renewable energy supplied to the station’s auxiliary power system can reduce about 2,000 MWh of power input from the grid.

As part of UKPN’s Science-Based Target commitment, all of its purchased electricity used in office buildings and substations have been on 100% renewable tariff and NGN has purchased 100% certified renewable electricity since 2018.

In addition, the Group had purchased a total of 26,784 MWh of renewable energy supported by green certificates, contributing to about 4% of the total electricity consumption. The renewable energy purchases drive reductions in our emissions and help protect us from rising energy costs.



 Ratchaburi Power’s rooftop solar system supplies electricity to the facility’s auxiliary power system.

Key targets and progress

Business Unit	Target	2021 Status
HK Electric	• Reduce 5% energy consumption in key office premises by 2025 as compared to 2020	In Progress
UKPN	• Reduce 10% energy use in top six buildings by 2021 as compared to 2018/2019	Achieved

Protecting Biodiversity

It is part of our [Environmental Policy](#) to protect the biodiversity and habitats in the area around our projects. We seek to minimise and mitigate the impact of our developments before we begin a project, and continually monitor the potential impact of operating projects on biodiversity.

During the implementation phase of the projects, HK Electric undertake environmental monitoring and audit programmes to ensure that recommended mitigation and remedial measures are fully implemented. HK Electric has also established planting programmes at Lamma Power Station which promote the cultivation of trees and shrubs, and also benefit local wildlife.

HK Electric, together with CLP Power have established a Marine Conservation Enhancement Fund and Fisheries Enhancement Fund under the Hong Kong Offshore LNG Terminal Project. This Fund supports scientific research, promotes environmental education, and supports the local fishing industry, amongst other biodiversity-related activities.

WWU has a long-term ambition to achieve biodiversity net gain (BNG) by 2039, with an interim goal of achieving no net loss on designated projects within 2021 and 2026. In conjunction with this, WWU has also embedded BNG principles into WWU's policies, strategies, and everyday business activities. Additionally, WWU is looking to implement biodiversity and ecosystem enhancements into its long-term assets.

To ensure the integrity of the network, WWU is sometimes required to remove trees that present risks to its pipelines and local communities. However, the company recognises that this has a negative impact on biodiversity and, therefore, is committed to addressing this impact by collaborating with stakeholders within Wales and the South West to support afforestation across the network in long-term managed schemes, in which five trees will be planted for every tree cut down.



UKPN volunteers help sow wildflower seeds near a substation in their operating area.

UKPN has formed a steering group of environmental experts with members from National Parks and Areas of Outstanding Natural Beauty (AONBs) in its distribution area to assess and prioritise future schemes on the undergrounding of overhead power lines. The committee reviews the impact of overhead lines on landscape character, visual amenity, landscape features, and whether undergrounding will improve the setting of a heritage asset or other historical features and biodiversity. The assessments allow UKPN to prioritise and invest in schemes to replace overhead power lines with underground cables. By removing overhead power lines from Natural Parks and AONBs, UKPN helps restore the natural environment in the British countryside.

HMLP has replaced the protection of the main pipelines crossing the Battle River. The selected bioengineered design achieved an equivalent level of scour protection while significantly increasing the value of the aquatic habitat throughout the entire footprint of the crossing using natural materials such as cobble, gravel, and boulders and utilised native vegetation to reclaim the banks and floodplains. In addition to providing scour protection, the objective was to create a micro-ecosystem that provided overwintering, spawning, and cover habitat for aquatic life and promoted increased biodiversity within the project footprint.

Water Management

Water is a basic and irreplaceable natural resource in many of our activities. Based on the water risk framework of the World Resources Institute's publication on financial risks from water constraints on power generation, we currently have no production plants/sites located in water-stressed areas, and our operations are considered low risk.

HK Electric has devised plans for the conservation of water, including reuse of wastewater and rainwater at its Lamma Power Station, adopting water-efficient appliances in the premises, and preserving the water quality by reducing discharge.

As part of the wastewater zero discharge scheme, Jinwan Power has undergone retrofit for its coal pulveriser pyrite system, which utilises a dry cleaning process to replace the original flushing water system. With the new system in operation, the annual effluent discharge is reduced by 60,000 tonnes.

Jinwan has also installed the flue gas duct bypass power rotary evaporator technology to deal with the difficult wastewater collected from the desulphurisation plant and demineralised water treatment plant to attain wastewater zero discharge target. The system not only can eliminate the discharge of 20 m³ of wastewater per hour but also enhance the efficiency of the electrostatic precipitator.

To save energy and reduce unnecessary withdrawal and discharge of sea water for condenser cooling in wintertime, the circulating water pump discharge headers for power generating units have been connected up so as to allow three pumps to support two units from November to March without sacrificing the overall thermal efficiency.

Since 2020, AGIG has initiated a programme to install flow meters on registered groundwater extraction bores along the Dampier to Bunbury Natural Gas Pipeline. The programme allows AGIG to monitor how and where groundwater is consumed, and the data is used to inform water use efficiency.



Wastewater is collected and reused at HK Electric's Lamma Power Station.

Waste Management

Another strategic objective of our [Environmental Policy](#) is the sound management of waste and effluent. We integrate circular thinking into business strategies through responsible raw material sourcing, efficient production processes, and product design.

Reduce, reuse and recycle

To minimise the use of single-use plastic and other non-recyclable waste, UKPN has conducted a thorough review of its suppliers’ plastic usage pattern to better understand its overall supply chain’s waste impact. As part of this process, UPKN also reviewed its personal protective equipment (PPE) supplier to replace plastic packaging with recycled alternatives, which eliminate the plastic wastes from over 7,300 PPE items per year.

Examples of our non-hazardous waste management initiatives include:

- HK Electric has established a green purchasing policy and green purchasing guidelines, which set out the principles to be followed in conducting purchasing activities and selection of commodities from suppliers.
- NGN promotes the use of recycled aggregates as an alternative to virgin aggregate for reinstatement of the excavations in highways and private properties, and has set an annual target to use no more than 17,000 tonnes of virgin aggregate each year. Between 2013/14 and 2020/21, annual virgin aggregate usage by NGN and its supply chain reduced by 64%, from 37,862 tonnes to 14,740 tonnes, meaning NGN used only 11% virgin aggregate in its reinstatement works during 2020/21.

- NGN implements an excavation spoil recycling programme and provides its contractors with the necessary knowledge, advice, and training, enabling almost 219,000 tonnes of excavation spoils to be diverted from landfill. Recycling excavation spoil also supports a circular economy by providing feedstock for the local production of recycled aggregates, which are purchased by NGN for reinstatement of its excavations.
- AGIG has implemented the “Containers for Change Programme” which aims to minimise the volume of waste sent to landfill. The programme is an extension of its existing co-mingled recycling programme and focuses on the collection of eligible containers for a refund of AU\$0.10. More than 10,000 plastic bottles were collected in 2021, and all money raised was donated to local charities.
- In 2021, a programme to re-classify odorant waste (incinerated carbon pellets) from non-hazardous/non-toxic waste to general waste was undertaken in consultation with specialist waste contractors. Re-classification of this waste stream represents a step change in the way we manage waste.

NGN has completed an innovative land contamination remediation project at its high-pressure gas site in Keswick in 2021. The project recovered 7,500 litres of contaminated water and coal tar from a buried tank located beneath live gas infrastructure on a small congested site by utilising a bespoke down-hole pumping system, which incorporated a heating system to mobilise stubborn contaminants. The recovered waste was safely disposed of offsite by specialised contractors. The project has also won the Best Remediation of a Smaller Site in the 2021 Brownfield Awards.

NGN has also installed an on-site multi-stage wastewater treatment system to process the contaminated water generated from dismantling and decommissioning two gas holders in Leeds and Blyth. Across these two projects, a total of

29,500m³ of contaminated water was successfully treated prior to discharge to the local sewer network. The on-site wastewater treatment system also avoided hundreds of road tanker journeys to dispose of this contaminated water.

Key targets and progress

Business Unit	Target	2021 Status
HK Electric	• Reduce 37% of ash and gypsum production by 2024 compared to 2019	On Track
UKPN	• Recycle 98% of street works spoil by 2020/2021 as compared to 2014/2015	Achieved
NGN	• Reduce 20% office and depot waste consumption of 2018 by 2026	On Track
SAPN	• 75% of total waste diverted from landfill (i.e. recycled or recovered for beneficial re-use)	On Track

Reducing Air and Fugitive Emissions

To reduce emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x), and respirable suspended particulates from its operations, HK Electric consumes cleaner fuels such as natural gas and low-sulphur coal and implements advanced emissions reduction systems such as flue gas desulphurisation plants and low-nitrogen-oxide burner systems for its remaining coal-fired units.

The new gas-fired units at Lamma Power Station feature advanced emissions control technology known as Selective Catalytic Reduction. Combined with other efficiency enhancements, this technology will contribute to reducing the emissions of greenhouse gases and other air pollutants.

NGN has implemented a rolling programme of replacement of its commercial vehicles such that no vehicle in its fleet will exceed six years in age or 90,000 miles. In addition, each vehicle is fitted with telematics to enable monitoring of driving habits to promote safe and fuel-efficient driving.

UKPN has the lowest leakage rate of the DNO Groups in the UK at 0.09% of total sulphur hexafluoride (SF6) service. Examples of initiatives adopted by UKPN include:

- Collaborating with research organisations, such as the Electric Power Research Institute, and industry partners to develop and implement a quick and easy leak-sealing technology that is not dependent on manufacturer availability and drastically reduces the time between leak detection and repair.
- Monitoring innovation space for the development of rapid SF6 leak detection technologies and adopting them once they are proven to be safe and technically acceptable.
- Researching the practicality and cost-effectiveness of installing SF6 leak detection sensors on electrical equipment with smaller amounts of gas, such as Ring Main Units, to facilitate faster responses to smaller leaks.

Regulatory Compliance

We regard compliance with laws and regulations as one of our top priorities and we follow established policies and accountability mechanisms to ensure regulatory compliance in various aspects of our operations. Group management is committed to staying abreast of the latest regulatory developments and providing all necessary training for the relevant personnel. We also dedicate extensive efforts to ensure effective monitoring and detection measures to track regulatory compliance.

During the reporting period, we were not aware of any non-compliance with laws and regulations having a significant impact on the Group relating to air and GHG emissions, discharge into water and land, and generation of hazardous and non-hazardous wastes.

Looking Forward

We will continue our established sustainability strategy by decarbonising our generation portfolio, modernising and digitalising the electricity networks, and blending renewable gas into existing gas distribution networks. We will also collaborate with industry peers and policymakers to advance towards a low-carbon economy. By moving the Group to a net zero trajectory, we are committed to phasing out coal from all our business operations by 2035. We are also planning to align our climate-related disclosures following the TCFD recommendations and set our own SBTi targets in the coming years.

We are a responsible employer, business partner, and corporate citizen

Our aim is to positively influence the wellbeing of everyone we come into contact with – including our employees, customers, suppliers, contractors and the wider community. We strive to be a partner that achieves the best for ourselves and others, by always behaving in a manner that embodies integrity, responsibility, respect and empowerment.



Human Capital Development



We believe that through revisiting the recruitment process and focusing on diversity in the workplace, we can improve our recruitment and retention strategies to attract the right talent. With the increasing participation of women in the utilities sector, focusing on diversity is likely to improve the industry's ability to meet its workforce needs.



Our Commitment

The Group's success through excellence depends on the performance of its employees at every level. The values the Group inculcates in its employees are candour, courtesy, an ability to deal with change and respect for humanity, personal dignity, and privacy.

As stated in our [Sustainability Policy](#), we are committed to:

- Being an equal opportunity employer
- Creating a diverse and inclusive workplace by respecting the values, customs, and traditions of our employees in different operating markets
- Caring for the wellbeing and health of our employees and aiming to achieve a workplace free of injuries
- Assisting staff to develop in an engaged workplace and caring for them and their families

HK Electric	<ul style="list-style-type: none"> • The Good MPF Employer Award
UKPN	<ul style="list-style-type: none"> • Named the sixth best large company to work for in the UK



The attraction, retention, and development of talent is essential for the Group's long-term development. The risk of increased turnover and associated costs of rehiring and the attrition of intellectual and human capital may pose threats to our ability to attract and retain talent. In recent years, the rapid evolution of the utilities businesses and the need to modernise the grid are leading to increased demand for employees with IT and data analytics skills. There are also risks of operational disruptions from strikes, which may negatively impact our service to customers.

Decarbonisation through replacing coal-fired power generation with a combination of renewables and natural gas-fired power, along with the implementation of smart meters, demands a shift in skillset for the existing workforce.



How We Work

Recruit and Retain Diverse Talent

Our recruitment, hiring, and performance appraisal processes form the foundations of positive, long-term employee relations.

Targeted recruitment

EDL has sought to encourage female participation and involvement through the implementation of an apprenticeship programme. This programme is aimed at local female high school students and is designed to increase awareness of different career options and encourage young females to consider non-traditional trade careers.

In conjunction with this, EDL has also established a graduate programme aimed at females studying science, technology, engineering, and mathematics (STEM) subjects at universities. This programme offers post-study employment to female STEM graduates once they conclude their studies. Not only will this programme support individual women looking to pursue a career in EDL engineering, it also promotes female participation in engineering more broadly.

United Energy and VPN also have graduate engineer recruitment programmes aimed at those who have completed and graduated from electrical engineering university courses. Through this recruitment initiative, we have been able to secure a strong and substantial pipeline of future talent and capability.



United Energy recruitment and training strategies aim to develop a diverse and inclusive workforce.

Flexible working

Maintaining flexible working arrangements to ensure a productive and positive workplace is the core element of our business. A number of our business units have implemented formal frameworks to enable our employees' flexible working arrangements in working hours and location. These business units include Canadian Power, SAPN, Seabank Power, United Energy, VPN, and Wellington Electricity. HK Electric has flexible working arrangements during the pandemic.

Following this, various business units – AVR, AGN, DBP, MGN, NGN, and HK Electric – have also established work policies to provide employees with flexibility in working hours and location.

Flexible working arrangements include the need for technology support. This has included the implementation of enhanced remote access software, as implemented at Canadian Power, AGN, DBP, and MGN.

NGN offers several generous family-friendly policies to encourage a positive and healthy work-life balance amongst its employees. These policies consider the individual's specific circumstances, including but not limited to job duties, time served with the company, personal circumstances, family commitments, health, etc. Flexible leave entitlements include maternity and paternity leave, maternity and paternity adoption leave, career breaks, dependents leave, parental leave, carers leave, sick leave, etc.

Talent retention

To retain talent, we provide competitive compensation packages, and eligible employees are entitled to additional incentives for their contributions to the company's growth, profitability, and other goals.

As an additional measure to reinforce employees' sense of belonging and commitment, WWU has introduced a flexible benefits scheme, allowing colleagues to choose additional benefits alongside their standard benefits packages. For example, employees can opt to take out private medical care, gym membership, dental insurance, etc. Every year, WWU improves this offering with additional benefits in response to colleagues' feedback and seek to protect the wellbeing of its staff by encouraging a healthy work-life balance.

In 2021, AGIG published an Employee Benefits Handbook, which outlines the many benefits of being a part of the AGIG team. The benefits include, but are not limited to: competitive remuneration, flexible working arrangements, attractive rosters, additional leave days, employee assistance programmes and training and development opportunities.

Performance review and appraisal

Our employee performance review process connects employee compensation with individual goals and aligns performance with business objectives and



CitiPower works with Yarra Trams to build Melbourne's first fully accessible tram route.

outcomes, creating a win-win situation for the employee and the Group.

HK Electric applies a robust, fair, and transparent annual performance review where all employees are formally appraised as part of an annual salary review progress. Employee performance is appraised regularly and remuneration is distributed in accordance with its pay-for-performance policy, which focuses on employee competencies and contributions to its business. In order to stay competitive, HK Electric conducts an annual review of its remuneration packages with reference to comparable organisations in relevant fields.

Strategic workforce planning

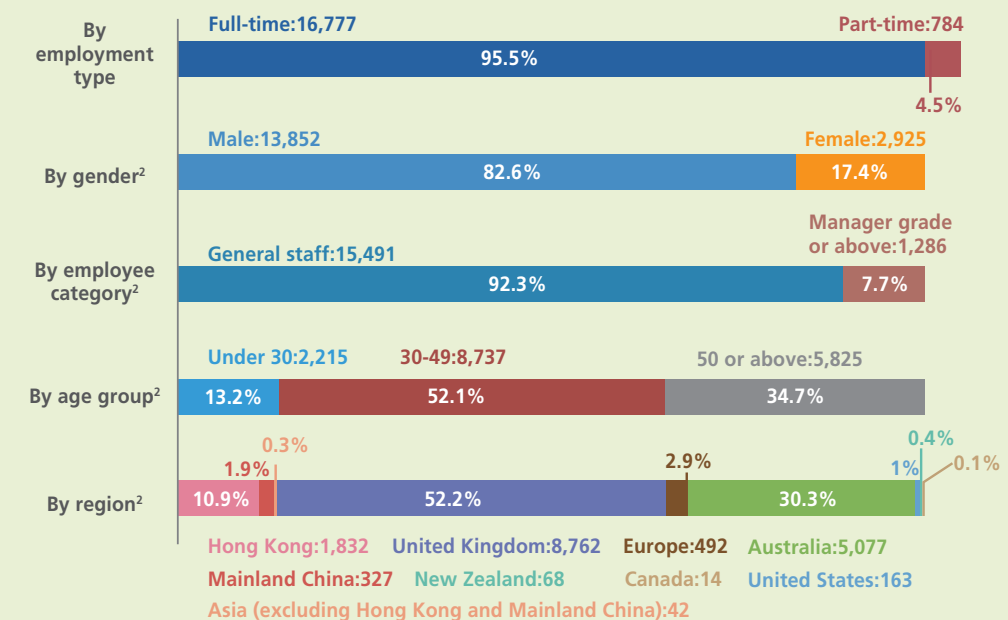
We have implemented strong strategic workforce planning, which is a long-term method aimed at the strategic alignment of an organisation's human capital with its business direction.

To maintain a positive and productive workforce, UKPN monitors trends in employee movements monthly. Following this monitoring process, UKPN produces a monthly report that includes employee turnover, predicted retirements, and departures by job category and employment type (i.e. permanent and fixed-term workers) and tracks this against overall manpower targets. These reports also include workforce targets based on the metrics from the employee data discussed above and then predicted by work volume. The executive management team reviews these monthly reports quarterly.



UKPN's recruitment programmes offer career paths for electrical engineering graduates.

Employee Profile¹

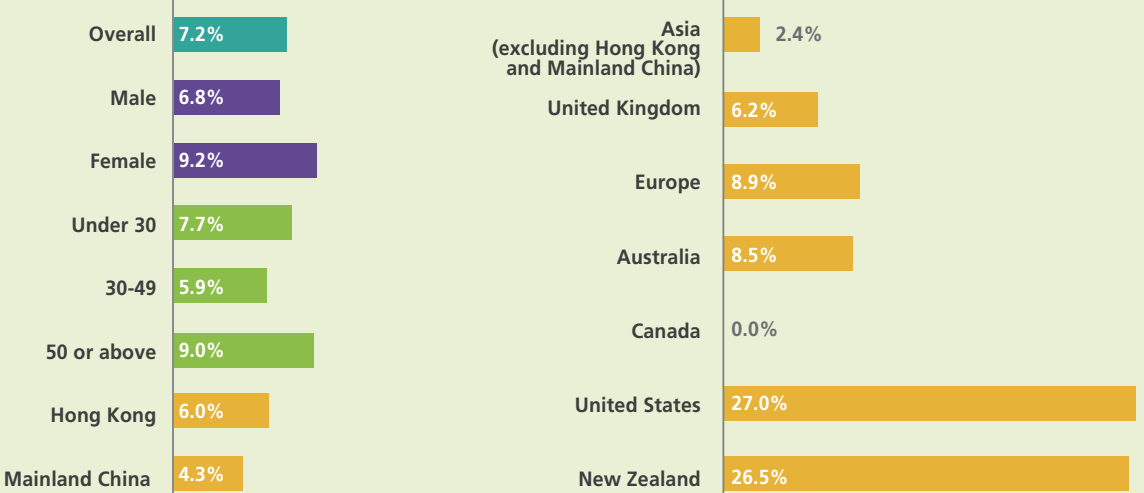


Note:

(1) Exclude Husky Midstream, as all the employees are outsourced from Husky Energy

(2) Full-time employees only

Employee Turnover¹



Note:

(1) Turnover rate refers to full-time employees only, which is calculated based on the employee departure during the year, divided by the average total number of employees as at 31 December 2021.

Training and Development

The professional growth of our people is essential to the growth of our business. We invest heavily in training to keep our people abreast of the latest developments in the industry and enhance their knowledge and performance. Training programmes are developed by respective business units to provide the most relevant learning experience that suits employees' specific needs.

The Group ensures that all our skilled staff members are professionally trained and suitably qualified for their roles. All operating companies are required to submit annual training logs to ensure that the requisite credentials for all skilled staff have been suitably attained and that refresher courses are conducted where needed.

Furthermore, the Group and most of its operating companies conduct various employee development programmes to suit their specific business needs and run rigorous leadership development programmes for eligible employees to enhance succession planning needs.

Job-specific training

To continuously support the growth and engagement of its employees, AVR has expanded the variety of refresher courses and coaching projects it offers to encourage its employees, with specific attention given to leadership skills.

In 2021, we provided 553,168 hours of training and development for full-time employees.

Succession planning

Employees at every level globally are provided with opportunities to develop themselves as leaders.

HK Electric has implemented a tailor-made learning workshop on leadership and coaching skills through its Young Talent Development Programme. This programme includes experiential learning, book review sessions, experience sharing, and action-learning projects, in addition to mentoring and sharing by experienced managers within HK Electric. This programme will accelerate the advancement of young talent into successful first-line leaders. HK Electric has also a Leadership Development Programme in place to prepare mid-level leaders to succeed within critical leadership roles.

Following the launch of its First Line Manager's traineeship in 2016, WWU has continued to allow colleagues to apply for and partake in this traineeship on a secondment basis. Those colleagues who join this programme undergo a six-month experience period before they return to their original grade. The aim of this programme is to improve the skills, confidence, and knowledge of the individual.

EDL has implemented a global training programme for emerging leaders within its organisation called the IGNITE programme. Coupled with this is the establishment of the Breaking Ground programme, which is aimed at potential leaders within the Global Frontline leadership area, to support them in developing key leadership skills.

Graduate traineeship/apprenticeship programme

In 2021, NGN recruited 27 new apprentices to work within our operational teams across a variety of functions. This campaign used a variety of techniques to attract a wider range of candidates. This resulted in the appointment of our first female apprentices into operational roles. We removed the requirement for driver's licences as an additional step, in line with our social mobility pledge. In 2022, NGN is recruiting a further seven Business Support apprentices, explicitly stating these roles do not require educational qualifications to further

demonstrate equality and diversity credentials. We are working with contacts in our Leeds Network on attracting candidates from priority areas identified in our social mobility pledge. Later in 2022, NGN aims to recruit a further 17 candidates.

United Energy and VPN have a 12-week summer intern programme designed to provide undergraduate students with the opportunity to experience working in the business. The programme aims to promote women in engineering.

Support for degree programmes and certification

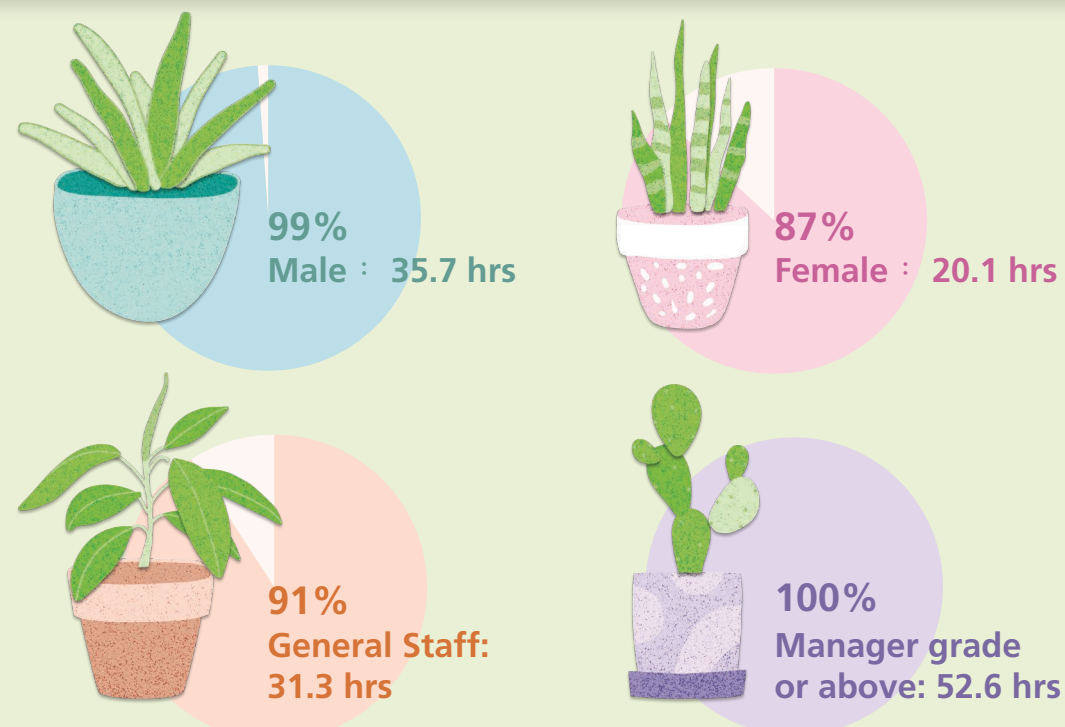
HK Electric has launched an education sponsorship programme to encourage continuous learning and upskilling. These programmes are available to employees undertaking a job-related Bachelor's Degree or Master's Degree.

Moreover, to enable employees to keep abreast of the knowledge and skills related to their professional disciplines, there are sponsorships for overseas and local training, as well as educational programmes or professional examinations.

UKPN has initiated a Supported Studies programme, which includes funding for professional qualifications, including electrical engineering and accounting. Around 300 employees have benefited from the programme so far.

United Energy and VPN provide education assistance for employees who are undertaking external study programmes, including MBA, diploma/Bachelor's degrees, CPA, etc.

Percentage of employees who received training¹ and average hours of training per employee by gender and by employee category



Note: (1) Full-time staff including terminated employees who left the Company during the reporting period. Percentage of employees who received training = number of employees trained in the category/total workforce of the category at the end of the reporting period x 100%. The percentage of employees trained may exceed 100%.

Diversity and Equal Opportunity

Having a diverse and inclusive workforce can provide different perspectives on how we conduct our business, and ultimately benefits our business performance. We strive to provide an equal-opportunity work environment that is free from harassment and discrimination and promotes unbiased decision-making.

We enforce an anti-discrimination policy and have zero tolerance for harassment in any form. All employees, irrespective of race, gender, or religious beliefs, receive equal opportunities, and our recruitment and promotion processes are based purely on performance. A Diversity Committee comprising representatives from different business units has been established in many of our operations around the world to raise awareness of diversity among the workforce.



At Power Assets, we are proud of our diverse workforce, which gives us access to different skills and perspectives.

Promoting diversity in the workplace

Measures to promote diversity continued in 2021.

WWU includes unconscious bias training in its management induction for newly promoted managers, and recruitment training for all recruiting managers. We are evolving our management induction to also include diversity and inclusion.

SAPN launched a digital apprenticeship targeting increased focus on females in STEM roles, especially those from disadvantaged backgrounds. This programme began recruitment in February 2021 and had its first intake in June 2021.

AVR contributed positively to society by its workforce-for-refugees programme, which has enabled AVR to provide job vacancies to five Syrian refugees.

EDL	<ul style="list-style-type: none"> Workplace Gender Equality Agency Pay Equity Ambassador
UKPN	<ul style="list-style-type: none"> National Equality Standard, Inclusive top 50 UK employers, third place; Investors in People – Platinum Maintained Accreditation under the UK National Equality Standard, 2020
NGN	<ul style="list-style-type: none"> Continued work with EU Skills and the Energy Networks Association's equality, diversity and inclusion (EDI) committee groups resulted in working sessions and participation in the EU Skills Inclusion and Belonging working group.



Training and guidance regarding diversity

EDL has launched a Diversity and Inclusion training for its Brisbane and Perth offices, which will be rolled out through an online training portal. In addition, EDL undertook several initiatives under its Reconciliation Action Plan to support Aboriginal and Torres Strait Islander (ATSI) individuals, communities, and businesses in Australia. This included procurement opportunities for ATSI businesses, partnership with Career Trackers and Career Seekers to support ATSI students, and sponsorship of ATSI community organisations.

Diversity monitoring

UKPN has established a Diversity and Inclusion dashboard, which includes action plans to increase visibility and engagement on diversity and inclusion initiatives.

NGN is collaborating with The Equal Group, a UK-based consultancy firm focusing on diversity and inclusion in the workplace, to ascertain and combat NGN's current diversity and inclusion challenges. To date, NGN has developed an Inclusion and Belonging Strategy document that outlines what short and long-term targets should be established for the NGN business. NGN is also working on plans to gather data in relation to our diversity statistics, which will then enable a focus on improvement with tangible and measurable changes. In the first instance, this includes our gender pay reporting, as well as the plans to gather more diversity data from new starters as part of our onboarding processes.

Two-way Communication

The Group always strives for effective, open, two-way communication, and various effective communication channels have been put in place.

UKPN has established a Trade Union Working Group specifically focused on diversity and inclusion in 2021. This working group holds forum meetings once a quarter and works to engage and obtain feedback from relevant trade unions.

To better understand the perspectives of its employees, UKPN conducts an annual engagement survey. This survey is deployed in September/October of every year and requests that participants provide a score out of 1,000 and a related satisfaction rating. The survey covers eight aspects, which are: My Manager, Leadership, My Company, Personal Growth, My Team, Wellbeing, Fair Deal, and Giving Something Back. In 2020, UKPN became a three-star company for the first time – the highest rating from Best Companies.

NGN has launched an Inclusion and Belonging Steering Group, as well as establishing Colleague Communities aimed at bringing together colleagues who identify as women LGBTQ+, parents, ethnic minority or disabled. The steering group works with these communities and aims to identify areas of improvement for NGN in terms of diversity and inclusion. This could be through supporting colleagues who feel underrepresented and establishing policies to develop the diversity and inclusion elements of NGN further.



Occupational Health and Safety



Why It Matters

Due to the nature of their operations, our investments are exposed to a range of health and safety risks. Any fatal or injurious accident involving members of the public or our employees or contractors could have significant consequences, resulting in widespread distress and harm or significant disruption to the operations, followed by possible regulatory action, legal liability, material costs, and damage to the Group's reputation. During the pandemic, we need to take necessary measures to protect our employees and contractors from being infected while maintaining a stable operation, since utilities play an especially vital role in keeping society running during emergencies.



Our Commitment

The Group is committed to offering a safe and secure environment for its employees, contractors, customers, and other stakeholders when they are at Group facilities and premises. Health and Safety is the top priority of the company. We encourage a company-wide safety culture where everyone from our top management and throughout the Group is responsible for making every workday healthy and safe.

The commitment of top management to health and safety issues is formalised in the [Health and Safety Policy](#), which is based on the following key principles:

- Complying fully with all applicable laws and regulations and integrating health and safety considerations into all aspects of our business activities
- Nurturing and supporting a company culture that promotes employee wellness and enhances health and safety awareness among our stakeholders by providing appropriate and timely information and training to identify hazards and manage risks

- Adopting and maintaining safety management systems and measures to monitor and manage the health and safety performance of our business and its contractors and suppliers
- Ensuring commitment from our stakeholders in all our markets to share the same vision, values, and responsibilities for health and safety and meet the same standards



How We Work

Health and Safety Management System

Power Assets is implementing a Health and Safety Management System (HMS) with the aim of contributing to the human capital "pillar" of the company's sustainability development.

This HMS serves to ensure continual health and safety improvements, monitors compliance with relevant laws and regulations, fulfils supply-chain requirements, and promotes staff health and safety awareness to achieve a no-injury workplace.

To ensure our operating companies have followed the guidance in the [Health and Safety Policy](#) of the Group, our directors or executives that sit on the Board of our material investments continually exercise their influence. They encourage the businesses to adopt our Group's principles in developing their own approach and practices that are most appropriate to their operations and geographic locations. Power Assets delegates its directors to determine a high-level health and safety strategy and policy, set corresponding targets, and oversee the health and safety performance of material investments. In addition, all operating companies are required to report to the Group their training needs and the qualifications of their employees to ensure compliance with safety guidelines and standards. Achievement of all training and refreshment courses are attached to the operating companies' management KPIs to ensure compliance.

Well-established HMSs have been adopted in different business units to ensure compliance with local regulatory requirements. For example, HK Electric, UKPN, WWU, Seabank Power, SAPN, VPN, and AVR have safety management systems in place that conform to international standards ISO 45001 or OHSAS 18001 to protect their employees, customers, contractors, and the public by conducting their businesses in a safe and socially responsible manner.

In addition, to identify improvement opportunities of the HMSs, both internal and external audit programmes are carried out in various scope and frequency in different business units throughout the year, including AVR, EDL, AGIG, HK Electric, SAPN, Seabank Power, UKPN, VPN and WWU.

AGIG's Health, Safety and Environment Policy and Safety Management System are designed to endorse, enforce and adhere to its risk management tools to manage HSE risk through ongoing identification, communication and control of workplace hazards.

The effectiveness of the management system and the health and safety performance of Power Assets and each of its businesses are subject to a biannual internal review in the Health and Safety Management Meeting.

Health and safety committee

To ensure we maintain a safe working environment, we leverage safety board to review and address our work-related injury risks.

HK Electric has a Health and Safety Board chaired by the Managing Director. The main mandate of the Board is to oversee the implementation of health and safety policies. This includes any necessary contingency plans, which are regularly reviewed to ensure they are effective and aligned with management's expectations.

SAPN has established an internal corporate Work Health and Safety (WHS) Committee. This WHS Committee reports directly to the Audit Committee

and Board as needed. SAPN has established a formal process to monitor health and safety throughout its business. This includes an internal audit and an OHS health check across all potential safety risks. In this financial year, SAPN completed six OHS health checks and four detailed internal audits. Coupled with these internal monitoring systems, Return to Work South Australia conducts a periodic review of SAPN every three to five years, with regular surveillance monitoring.

Other operating companies with Board or management-led committees responsible for the health and safety risks, mitigation and related issues include EDL, United Energy, UKPN, VPN, WWU, and Wellington Electricity.

Performance monitoring and measurement

HK Electric closely monitors its Lost Time Injury figures. As part of this process, all incidents are investigated thoroughly to determine their underlying causes and formulate remedies and related precautionary measures to prevent recurrence.

UKPN regularly reports hazards and injuries through an internal monitoring system, the AIRline system. This process includes a daily monitoring system and is shared with the wider safety teams across the business to identify trends to prevent recurrence.

Health and safety performance

The Group maintained zero work-related fatalities across all our employees.

Emergency Preparedness and Crisis Management

Our goal is to create a controlled work environment where our people and assets are safe and our operations have minimal impact on the environment and project area communities. We have plans and processes in place to help prevent and prepare for, respond to, and recover from potential emergencies such as fire, oil and chemical spills, typhoons, flooding, emergency evacuations, rescues from confined spaces, and heat-stroke treatment.

Emergency response plans

Emergency Response Plans (ERP) are in place for most of our operating companies, including AGIG, AVR, EDL, United Energy, Wellington Electricity, HK Electric etc.

UKPN has implemented emergency preparedness procedures to establish a framework for command, control, coordination, and communications in response to any business-related incidents. These incidents will be assessed and handled by managers or specific incident management teams. UKPN's procedure and incident management procedures are reviewed by UKPN's Organisational Resilience Leadership Team, which tests this process through example incidents with the aims of improving the process where gaps arise. UKPN invites the UK's Government Emergency Planning College to conduct a baseline review of UKPN organisation's resilience process, an assessment of the maturity of our planning and development in leadership and culture, strategy and governance, risk management processes, incident and crisis management, and business continuity planning.

AGIG's Emergency Response Plan (ERP) is designed to ensure everyone involved in emergency response is familiar with notification, mobilisation and escalation procedures, as well as individual roles and responsibilities. The ERP defines and provides guidance on the appropriate response to emergency events (unplanned events) across transmission and network operations, as well as the wider energy sector. It provides a reference guide for AGIG's comprehensive approach to emergency management and aligns with the requirements outlined in applicable Australian Standards.

VPN has established a crisis management team to respond to any unforeseen crisis. This includes responding effectively to minimise the consequence of the event, establish control and manage objectives while remaining flexible, scalable, and adaptable. VPN expects that its crisis management team will be able to safeguard and care for its staff and customers whilst still upholding a strong, positive reputation.

Mechanisms for stakeholders to report emergencies

WWU has established a national hotline for all members of the public to report any gas emergencies should they arise. WWU monitors the success of this through the response time to answer calls, which is reported monthly. WWU aims to answer 90% of calls within 30 seconds. Between January and December, 2021 WWU exceeded this goal and answered 91.39% of calls within 30 seconds.

VPN has established a similar 24/7 Contact Centre, which is available to external stakeholders to report or obtain information regarding any power-related queries. Coupled with this, VPN's website provides extensive and detailed information, with a real-time interactive outage map to allow customers to track any electricity outages. Following these two mechanisms, customers can also subscribe to VPN's SMS service to receive individual-specific outage advice, including outage notifications, outage progress, expected restoration times, and outage completion etc.

Regular training

EDL conducts emergency management and crisis management awareness training to ensure senior managers are well-positioned to respond swiftly to emergencies and crises. The annual review of the Crisis Management and Business Continuity Planning Programme updates materials and process documents. Training scenarios and business-relevant emergency response scenarios are delivered to executives, senior leaders, and support workers to further build capability and resilience.

Seabank Power regularly tests its emergency response plans and adjusts accordingly if needed. Seabank achieves this through practising emergency response plans for initiating site-wide emergency evacuation/roll call and site-wide toxic release/roll call alarms. These mock emergencies include all employees, contractors, and on-site visitors present at the time of the drill.

Hazard Identification and Risk Assessment

We are committed to rigorously managing the risks associated with hazardous processes, such as those with the potential to result in catastrophic fires, explosions, and sudden release of toxic materials.

Health and safety monitoring systems and formal audit programmes are established. Audits on the safety management system at the corporate level, Transmission and Distribution (T&D) Division-level and Generation (GEN) Division-level are conducted not less than once every 12 months by Registered Safety Auditors to ensure all necessary safety regulations/requirements are strictly followed.

EDL continues to improve its hazard identification and risk assessment system, which is managed through various avenues. The first is the Shared Analysis Management (SAM) System, which operates across its business to provide a hazard and incident management recording and reporting process. In conjunction with this, EDL has a requirement to record incidents, hazards, and assurance events into the SAM system, which supports EDL to identify trends and establish mechanisms to control hazards and avoid safety incidents.

EDL's Global Health and Safety Team completes a range of desktop and site-based research on HSE audits. The scope includes auditing according to the HS Management Systems, which sets the minimum requirements to which individuals and sites must adhere. EDL also engages an external auditor to conduct an internal audit of EDL's Health and Safety Management Systems during the year.

The sites EDL owns and controls are subject to several annual external audits. These audit sites include the following: the Victoria LFG Pipeline, Victoria Power Station, Broome Pipeline, and Maitland LNG Facility. EDL may commission external specialist technical audits on various plants and equipment as part of risk assessments or reviews including hazardous area and grid compliance audits. Further, beginning in 2021, a Global Health and Safety Systems Audit began; the results will be included in next year's report.

WWU has an effective approach to the identification of hazards/risks and controls. We operate a number of risk registers at high levels that filter down to individuals, and specific task risk assessments that support our teams to undertake a dynamic risk assessment when they arrive on site. All risk registers and assessments are reviewed annually/quarterly, respectively, and adopt known best practices and technological advances at the time of review. All risk assessments are completed using a collaborative approach with persons from all parts of the business, including management, operational field staff and trade union safety representatives. SAPN has established a strict process to ensure hazardous risks are reported and addressed. This process includes OHS health checks (approximately six per year), as well as detailed internal audits, which ensures all safety risks are observed on a periodic basis.

Following this, an insurance company conducts an external audit of the safety and injury management systems every three to five years. A consultancy firm is also engaged for certification and monitoring of compliance with ISO 45001.

Asset Integrity Management

EDL has a Global Asset Management Strategy (GAMS) that defines how EDL manages its global production assets through their lifecycle to achieve various objectives, including maintaining the integrity of the physical assets under its operational control; satisfying all relevant legal, regulatory, company and commercial obligations; and continually monitoring, reviewing, and improving the ongoing performance and reliability of EDL assets. GAMS also supports the establishment of associated risk and lifecycle management and effective asset governance, and guides the development and implementation of site/equipment asset management plans and inspections, testing, and maintenance schedules. Further, there is a fortnightly and monthly review process by operations leaders and the executive team.

VPN has established an Asset Management system that aligns with ISO 55001 and underpins the Energy Safe Victoria-approved asset inspection and maintenance programme.

Contractor Safety Programme

We continue to collaborate with our contractors to develop and implement innovative solutions for improving health and safety performance to ensure we are prepared for the increase in work programmes associated with our growth projects.

Pre-screening of contractors for safety performance and risks

HK Electric employs a number of mechanisms to manage the safety performance of its contractors. To this end, HK Electric requires contractors to demonstrate a commitment to high standards of health and safety and take the necessary steps to safeguard the health and safety of all their employees and the public. For example, every contractor should aim for zero fatal accidents, dangerous occurrences, and reportable incidents. HK Electric requests all contractors to submit their safety plans within 28 days after contracting with HK Electric.

Seabank Power operates a stringent process to ensure all contractors engaged meet an adequate safety standard. All potential suppliers must submit a Supplier Information Form, which includes statistics on their health and safety activities. Seabank Power also requested a copy of their health and safety policy to ascertain contractors' suitability. To this end, the returned forms are reviewed by the Contract Officer, and only contractors with good health and safety performance are approved.

UKPN requires all its external contractors to comply with baseline health and safety policies. To verify this, UKPN monitors the performance through inspection, audit, and performance review meetings.

Monitoring contractor safety performance

Seabank Power's priority is to ensure contractors accept and apply comparable health and safety standards. To achieve this, Seabank Power carries out eight job freeze audits on approved contractors' companies working on site. This includes asking these contractors a series of standard questions that assist in determining the contractor's safety management knowledge.

The results from these interviews are then scored; those who do not meet the minimum threshold undergo further inspection.

Prior to engagement, AGIG screens contractors using a robust pre-qualification process to ensure adequate induction, training and supervision are provided to workers.

Contractor training

EDL aims to ensure all contractors are aware of its safety policy and system requirements by requiring them to complete a suite of training courses before they begin any work.

UKPN requires all contractors to complete the "Worker Accreditation Programme" (WAP) every three years to ensure their competency levels remain up to date. This process is monitored through refresher courses, training, knowledge tests, safety visits, and operational audits. The latest WAP cycle was completed in June 2021, with all operational contractors passing the required threshold. Any contractor who fails to meet these requirements will be removed as a service provider.



Both employees and contractors at Ratchaburi Power receive regular fire safety training.

Promotion of Occupational and Psychosocial Health

Our employees' health and safety is our top priority. This is especially true in the face of the COVID-19 pandemic.

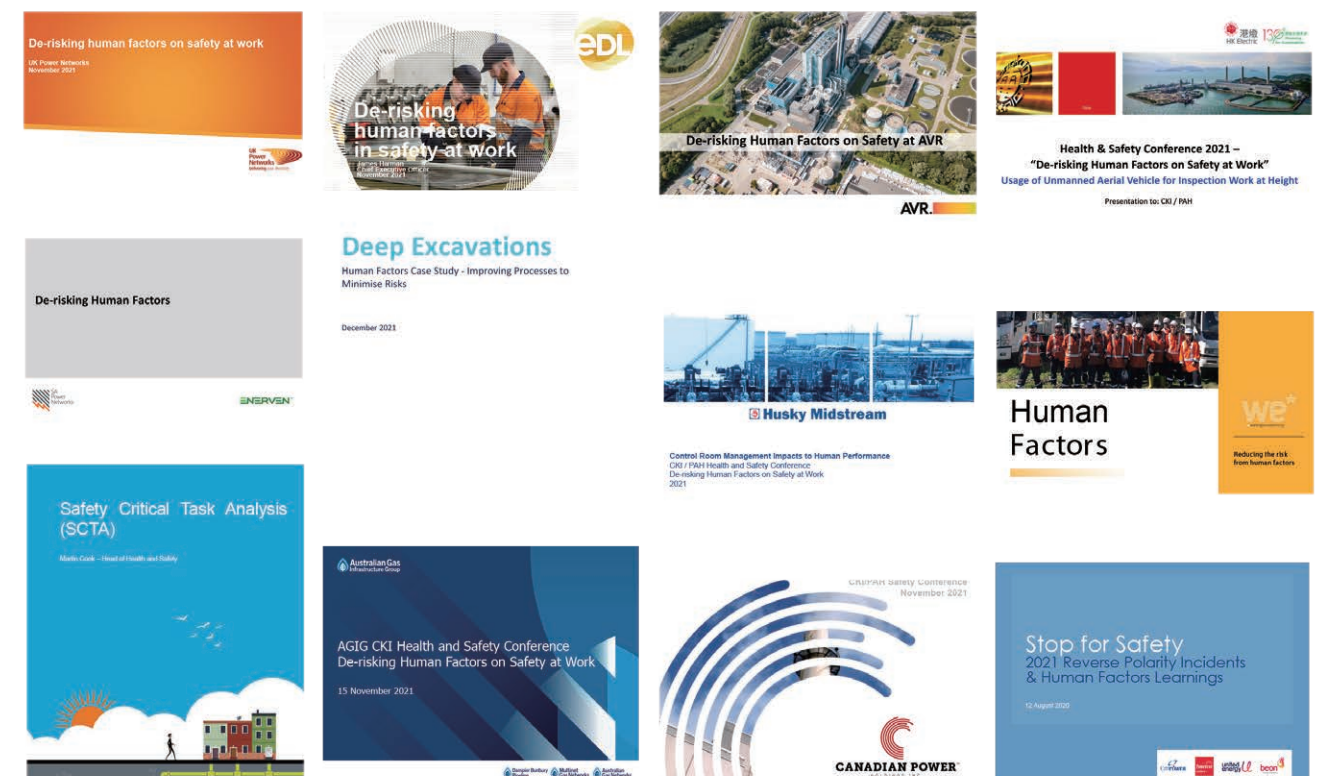
Regular health and safety training

With zero workplace accidents as its ultimate goal, Power Assets has organised an in-house Health and Safety Conference with the operation companies to share experiences and lessons learnt.

HK Electric also conducts regular health and safety training to enhance health and safety awareness. The training includes forums, health talks, webinars, and safety quizzes.

Seabank Power conducts regular health and safety training through its intranet, which is compulsory for all employees. The training includes display screen equipment use or specific courses for individual employees, such as confined space working.

HEALTH AND SAFETY CONFERENCE



We run a series of programmes throughout the year to promote a safety-first mindset.



Cybersecurity



Why It Matters

Cybersecurity risk is an increasingly common business threat that can pose immense challenges to companies. Over the years, cyber-attacks have continued to proliferate, escalating in frequency, severity, and impact. Organisations will face high monetary and reputational risks in the absence of appropriate cybersecurity plans. As the utilities sector digitalises, it also becomes more vulnerable to cybersecurity threats, increasing its exposure to cyber-attacks.



Our Commitment

The Group seeks to protect its critical assets and data from cyber-attacks and ensure adequate and effective cybersecurity defences to protect corporate information assets and critical infrastructure.

The Group has also set the following KPIs to assure the robustness of its cybersecurity measures:

- Periodically perform security assessments of critical IT infrastructure and processes to identify security weaknesses and vulnerabilities
- Periodically conduct penetration tests in the IT landscape to discover potential vulnerabilities
- Complete web security enhancement project to strengthen the security protection of Internet browsing activities
- Perform security assessment and enhancement of end-point device and server, ICS/OT, private cloud, and application software
- Continue to raise cybersecurity awareness among employees by running cybersecurity awareness training programmes and carrying out phishing drills from time to time



How We Work

Governance

We have established a framework to facilitate a systematic approach in identifying, assessing, and managing the cybersecurity risk within the Group.



1. Develop an organisational understanding to manage cybersecurity risk to systems, people, assets, data, and capabilities.
2. Develop and implement appropriate safeguards to ensure the delivery of critical services.
3. Develop and implement appropriate activities to identify the occurrence of a cybersecurity event.
4. Develop and implement appropriate activities to respond to a detected cybersecurity incident.
5. Develop and implement appropriate activities to maintain infrastructure resilience and restore any capabilities or services that were impaired due to a cybersecurity incident.



Cleaning and sanitation are implemented rigorously to keep HK Electric employees safe during COVID-19.

Wellness and mental health

Wellness and mental health are at the forefront of our employee engagement. We believe that this extends beyond mere awareness to include mental toughness and resilience training to support our employees, especially during the various COVID-19-enforced lockdowns. For example, we offered various virtual fitness sessions to our employees working from home. In conjunction with virtual programmes, we continued to offer regular health checks through our medical insurance providers. Power Assets also promotes employee wellbeing and health through a wide range of activities, including organising online classes and providing health tips to its employees on their own physical and emotional health (i.e., work-life balance).

COVID-19 response

Following UK COVID-19 legislation and guidance, NGN monitors compliance through site-based audits using checklists based on COVID-19 risk assessments. The senior management team meet weekly and more frequently, if required to continually review government guidance and update COVID working practices where appropriate. These changes are always communicated to colleagues in a timely manner.

Seabank Power has added a COVID-19 element to its emergency management system. This includes comprehensive COVID-19 procedures and risk assessments that have been established to safeguard against and minimise potential infections and related risks that could arise because of COVID-19. The procedures are regularly reviewed.

SAPN has implemented a dedicated COVID-19 internal communication mechanism to ensure employees are provided with up-to-date information regularly. This has included information regarding working from home, health and wellbeing, and COVID-19 risk management. The information provided through this internal website is in line with directions provided by the health authority of South Australia.

Supply Chain Management



Why It Matters

As a global investor in energy and utility-related businesses with over 16,000 suppliers, the Group is aware of the broader influence it has, and can use its purchasing power to encourage suppliers to make their operations more sustainable.

We encourage all businesses in our supply chain to share our commitment in respect of environmental stewardship, products or services, child labour, fundamental human rights, working conditions, remuneration, occupational health and safety, and business ethics.

During the pandemic, effective collaboration with all stakeholders in the supply chain is critical to our growth and success. Any supply chain disruption resulting from COVID-19 may pose tremendous pressure on our operational efficiency across all functions of supply chain management. In addition, with the formation of more business collaborations and partnerships globally, the mode of operation is required to change in response to the dynamic industry environment.



Our Commitment

The [Supplier Code of Conduct](#) underpins our commitment, and serves as a guideline for all our business partners and suppliers. We encourage compliance with the Code to bring broader sustainability improvements across our business partners and suppliers and the communities the Group serves.

Under the Code of Conduct, the Group works with suppliers and business partners who can demonstrate their commitments to uphold the principles detailed in the Code. The content of this Code has been developed by taking into consideration a number of international charters and conventions, such as the United Nation's Declaration on Human Rights and the International Labour Organisation Core Conventions.

Several other policies also support our commitment to promote supply chain sustainability, including:

- [Human Rights Policy](#) – Highlights the respect for human rights as a fundamental value of the Group and explains our expectation on business partners and suppliers to uphold the principles in our Human Rights Policy and adopt similar policies within their own businesses.
- [Modern Slavery and Human Trafficking Statement](#) – Reiterates the Group's zero-tolerance against modern slavery, and our commitment to preventing modern slavery and human trafficking. It is expected that business partners and suppliers share the same values with the Group, complying with the relevant laws, regulations, and reporting requirements. Transparency in business partners' and suppliers' approaches to tackling modern slavery is also expected to be maintained in all our business relationships.
- [Environmental Policy](#) – States the Group's awareness of the direct and indirect impact arising from its ability to influence environmental performance within its value chain and in its investments, and how it endeavours to influence suppliers by raising awareness on environmental issues, eco-friendly practices, and professional environmental considerations.



The Group organised an IT/OT Cybersecurity Colloquium to bring colleagues together, where ideas and best practices can be shared. We established frameworks to guide improvement, set key strategic pillars and direction, and agreed on insights to provide increased cybersecurity.

Each of our investments has taken a risk-based and integrated approach to combat cybersecurity risk. They have established their own cybersecurity management framework or processes to proactively identify, prevent, detect, respond to, and recover from cybersecurity attacks.

Cybersecurity Measures

We are committed to the protection of our people, assets, reputation, and brand through securely enabled operations.

HK Electric employs a System Operations Cyber Security Incident Response Plan to characterise and classify reportable cybersecurity events related to system operations. Continuing from this, HK Electric has established a cybersecurity management framework to address all technical, regulatory, and managerial aspects of cybersecurity on an ongoing basis. This framework is based on a defence-in-depth strategy and focuses on ensuring the confidentiality, integrity, and availability of all critical infrastructure and information assets. Within this framework, multiple technology security layers have been deployed and integrated with different cybersecurity processes to enable HK Electric employees to identify, protect, detect, respond to, and recover from cybersecurity incidents.

Further, HK Electric conducts regular audits for its HK Electric Customer Information System to ensure the relevant information security control and processes are continually monitored, reviewed, and improved, and that they conform to ISO 27001 security standard. This standard is a leading cybersecurity standard globally for information security management systems.

EDL engaged an external consultant to conduct a thorough review of its cybersecurity and information management systems, in which the current cyber and information systems are reviewed against two national security practices, the NIST framework

800-53 and the Australian Energy Sector Cybersecurity Framework.

This review provided EDL with a comprehensive understanding of the current cybersecurity controls in both the IT (Information Technology) and OT (Operational Technology) environments. Further, this review also provided key recommendations on how best to improve EDL's cybersecurity and information systems.

United Energy and VPN have completed an external penetration test to better understand any potential exposure or leakage of internal systems and confidential/sensitive information. This was executed as a part of their cyber assurance programme.

Employee Training

UKPN operates a company-wide campaign branded "Security Matters" to communicate awareness material across multiple channels, such as the intranet, email, Yammer, digital noticeboards, and user briefings, covering the cyber, physical, and personnel aspects. An online training cybersecurity course is mandatory for all employees.

AGIG has introduced a new Online Learning Management System that allows users to search, self-nominate and request for training materials. Such training includes technical and non-technical training that extends to AGIG service providers as well.

SAPN offers vocational educational programmes in cybersecurity. Training programmes are delivered by registered training organisations, and nationally accredited qualifications are credited. New employees are assigned mandatory e-learning modules on cybersecurity information when they join the company, and are required to re-complete updated modules annually. The mandatory e-learning is also supported by an ongoing phishing campaign and regular awareness communications to test and raise staff awareness.

Likewise, new hires from EDL, WWU, and VPN are assigned mandatory e-learning modules on cybersecurity when they join the Group.

Power Assets and HK Electric conducted regular phishing drills to test employee phishing awareness. In 2021, five drills were carried out.



How We Work

Supplier Screening and Selection

The Group is aware of the environmental and social impacts that may ensue along the supply chain, and is committed to minimising such risks in its collaborations with suppliers. ESG-related factors form an important part of the assessment process and have a due weighting in our consideration of potential suppliers and contractors.

HK Electric requires its suppliers and contractors to register under the Company's Recognised Tenderers Register (RTR) before tendering for the Company's major contracts. Suppliers and contractors must submit the required information in relation to their environmental management systems, health and safety policies. HK Electric's Code of Practice for Suppliers includes provisions on ethical standards, human and labour rights, health and safety, and environmental protection for contractors and suppliers to follow.

In conjunction with RTR, HK Electric has also established additional practices for specific work. For example, the environmental, health, and safety performance of trench work contractors is closely monitored through a merit and demerit system.

NGN has a long-term environmental strategy that aims at delivering a decarbonised energy network with reduced operational environmental impacts by 2050. This environmental strategy encompasses five focus areas, which are each aligned to a UN Sustainable Development Goal. Further, each of these focus areas contains long-term objectives that should be achieved by 2050. These targets are also aligned with our Environmental Action Plan developed as part of NGN's Business Plan for RIIO-GD2 price controls.

NGN is also currently re-tendering its stationery contract, and environmental requirements have been included in the scope. For example, this includes plastic-free packaging and recyclable material.

To ensure that NGN's suppliers and vendors share its environmental values, NGN verify suppliers' Environmental Management Systems prior to entering into contract. NGN's Environment Team will be involved in the tendering processes to ensure the vendor's environmental specifications have been considered and evaluated.

UKPN employs various mechanisms to assess its suppliers through a pre-qualification platform, Achilles Utilities Vendor Database. As an industry-recognised risk management framework, Achilles UVDB provides a fair, open, and transparent means of supplier selection for potential tender opportunities. New suppliers are granted access to the questionnaire and audit protocols in the public domain of Achilles UVDB and Verify Audits.

This platform includes a pre-qualification check for suppliers which ensures that suppliers of goods, works, and services meet our required levels of health, safety, environment, quality, construction, design and management capability, ethics, diversity and inclusiveness, and commercial and financial stability standards.

All UKPN suppliers must be registered with Achilles as a minimum standard of pre-qualification. In addition, suppliers undertaking high-risk activities on our behalf must comply with additional pre-qualification and approval procedures before commencing any work. High risk activities include working on electrical networks, working in confined spaces, working on UKPN's Assets, etc.

Ongoing Monitoring and Evaluation

Regular monitoring, audits, and evaluations are carried out to assess the performance of our suppliers.

WWU assesses high-risk activity suppliers via a desktop assessment that audits and validates all suppliers and requires a minimum threshold of safety.

SAPN employs a centralised supplier onboarding team to streamline the induction of new and existing suppliers. This team has established system controls to segregate duties, and all suppliers' information is audited regularly. This allows the elimination and mitigation of any actual or perceived risks in supply engagement, and a consistent onboarding practice of all SAPN suppliers.

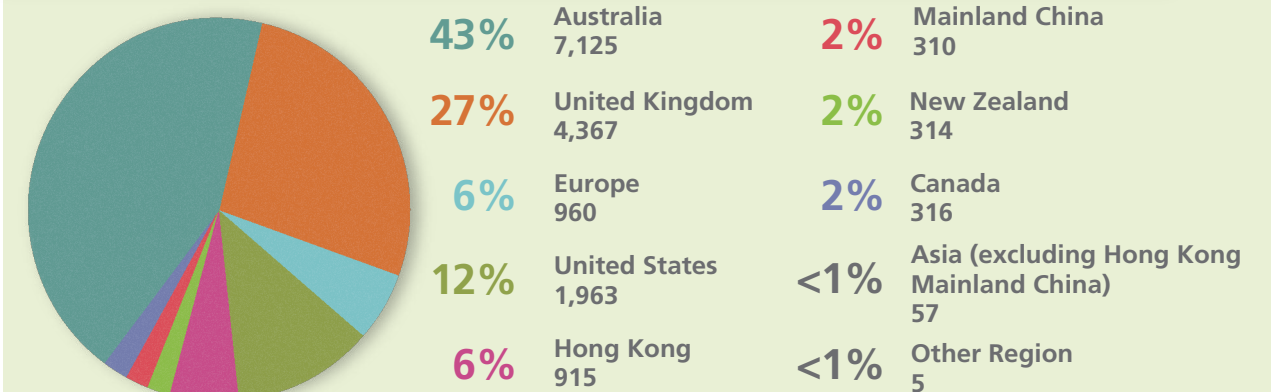
Communication

In addition to enforcing our Supplier Code of Conduct, we actively communicate with our suppliers to help improve their sustainability performance.

UKPN believes supply chains have a critical role at the heart of the future energy landscape, enabling the transition to a net-zero carbon economy. To this end, UKPN has created an e-book to further enhance its relationship with its supply chain vendors. The purpose of this book is to highlight future challenges which UKPN may face and turn them into opportunities for us all. The e-book also outlines what RIIO-ED2 means for the supply chain in the future and provides a forum for suppliers to inform UKPN's business strategy. In 2021, UKPN engaged with over 1,000 suppliers.

United Energy monitors its network supplier performance through close and regular engagement. United Energy has implemented performance improvement initiatives with 10 suppliers since January 2020.

Number of suppliers by geographical region



Community Engagement



Why It Matters

Electricity and utility companies can have enormous impacts on surrounding communities through their acquisition and development of large land tracts for power plants and pipelines as well as their use of water resources. Through effective community engagement, we can manage our socio-environmental impact responsibly and positively influence the communities we serve.



Our Commitment

We are committed to respecting the rights of the communities and contributing towards their economic and social progress by interfacing with a range of stakeholders on a regular basis. From development through operations, we engage local communities to share information and ensure our projects have a positive impact on the community.



How We Work

Better Access to Affordable Energy

Providing affordable electricity for customers is critical to supporting local economies.

HK Electric has established a Smart Power Care Fund to promote energy efficiency and subsidise low-carbon living. For example, eligible households

may apply for a one-off subsidy up to HK\$5,000 each for replacing household electrical appliances with more energy-efficient models and appliances.

UKPN believes it has a social responsibility to support the 980,000 households affected by fuel poverty in London, the South East, and East of England, which have been exacerbated by the COVID-19 pandemic.

UKPN expands its partnerships with local organisations and charities every year. In 2021, UKPN worked with 32 fuel poverty partners on over 39 projects and provided fuel poverty information and advice services to 841,000 customers, saving them an estimated total of £5.7 million in electricity tariff payments. In addition, UKPN delivered in-depth, personalised support to 13,845 households in rural communities, saving them a total of £2.7 million, with an additional £19.5 million to be realised over the coming years through income maximisation and reducing bills via tariff switching and grant registrations.

Many of these fuel poverty projects were funded by UKPN's Power Partners community fund, which provides approximately £300,000 worth of grants each year to a total of 41 community projects across the East, South East of England, and



SAPN hosted the 2021 Solar Industry Reference Group at its Network Innovation Centre.



MGN food bank orchestrates the distribution of groceries and staples for vulnerable households affected by the pandemic.

London to combat fuel poverty, support people in vulnerable circumstances, and make community buildings warmer and cheaper to heat. The fund is administered in partnership with a leading energy justice charity, the Centre for Sustainable Energy.

NGN supports customers living in fuel poverty through various initiatives. NGN aims to assist 1,000 customers a year to become more financially resilient to energy costs and provide them with cheaper sources of energy.

Customer Relationship Management

As a global investor in companies in energy generation, transmission, and distribution, and working with the spectrum of fuels including coal, gas, renewables, waste, and oil across four continents, the Group currently serves a total of over 19 million customers.

The Group aims to achieve excellence in customer satisfaction by continually improving our services and achieving or even exceeding service targets. A Customer Services Policy is in place to guide our operating companies to deliver quality and professional services, putting customer needs at

the core of their businesses. We respect customers' views and suggestions and respond promptly, using the latest technologies to reach out to them. We seek continuous improvement and engage stakeholders in our pursuit of excellence to satisfy customers' needs and align our business processes with best practices.

The Group uses various mechanisms to measure customer satisfaction levels and monitor feedback to understand customer perceptions and implement the appropriate corrective actions.

HK Electric continued to gather customer feedback systematically through regular satisfaction surveys and the Customer Liaison Group. Its average Customer Satisfaction Index (5-point scale) maintained at 4.7 in 2021 reflecting a very high level of customer satisfaction.

For our operating companies around the world, customers have various channels available through which to make a complaint or request information. During the year, we received 6,675 product and service-related complaints, compared to 6,928 in 2020.

NGN supports relationships with customers through a wide range of activities and measurements. Alongside its regulated Customer Satisfaction Survey and benchmarking through the Institute for Customer Service, NGN actively monitors and improves the speed and quality of response to customer complaints through its Complaints Handling Standard, which is published on its website.

NGN is a member of the Considerate Constructors Scheme, which is a UK-wide independently audited scheme to support construction organisations deliver exceptional levels of customer service.

UKPN continues to be ranked in the top utility providers in the UK according to the Institute of Customer Service's UK Customer Satisfaction Index. UKPN was the first DNO to be featured in this national customer service index and ranked in the top five companies in the UK for service. These top rankings are supported by the 2,000 customers who rated UKPN's services. UKPN has maintained an "Excellent" Trust Pilot rating score of 4.9 out of 5, a UK distribution network first, which further solidifies its quality service.

Community Consultation

We take community concerns about our activities seriously. To better respond to the demands of the communities we serve, we regularly engage with stakeholders to listen to their needs and gain insight into areas of concern. Our integrated approach ensures that we can identify and address specific issues, always taking into consideration the diversity of economic, social, and cultural situations in which we operate.

EDL has a Reconciliation Action Plan (RAP) which includes various diversity and inclusions aspects to address the challenges of working in multiple jurisdictions, communities, and areas. As a global energy producer, EDL is committed to meaningful relationships with Aboriginal and Torres Strait Islander (Indigenous Australian) stakeholders, both externally and within the business among employees, particularly in the remote communities where it operates. The RAP Committee was formed in mid-2019 and comprises EDL's Australian personnel, including Aboriginal and Torres Strait Islander employees. It focuses on relationships with, respect for, and opportunities with Aboriginal and Torres Strait Islander people.



EDL employees give away free seedlings to encourage community members to take part in a consultation exercise.



DBP employees prepare food packets for the underprivileged.

SAPN consults with a broad and diverse range of community groups and internal and external stakeholders through various engagement opportunities, including its Community Consultative Advisory Board, which comprises 16 members with diverse backgrounds representing various sectors of the community.

VPN undertook community engagements to support the decommissioning of the Russell Place Zone Substation, which was completed in 2021. This was a complex process that required major equipment, including two 23-tonne transformers, control room panels, a switchboard, and redundant cables to be removed from a sub-basement location. To consult the community, VPN visited local residents' homes and businesses to obtain feedback. This process aimed to minimise impact and disruption to external stakeholders.

Wellington Electricity regularly engages with rural communities on various issues, including vegetation control. Wellington Electricity believes that enhanced cooperation with residents through direct communication is the most productive method to resolve concerns and issues.

Community Investment

The Group supports the economic and social growth of the local communities in which it operates, in accordance with the specific commitments specified in the Sustainability Policy.

The Hong Kong Council of Social Service awarded the 15 Years Plus Caring Company Logo to the Group, in recognition of our commitment to care for the community, employees, and the environment over the past years.

Each of our businesses supported their local communities in 2021, particularly towards fighting the pandemic.

In 2021, HK Electric expanded the scope of its Smart Power Care Fund to facilitate the purchase of energy-efficient kitchen, laundry and water-heating equipment and appliances by small and medium-sized enterprises in a range of sectors, as well as NGOs delivering educational and community care services. Together with the distribution of another round of dining coupons, more than 300 small and medium-sized businesses and 40,000 underprivileged families benefited directly from these relief measures.

NGN has partnered with another electricity company to launch the Community Partnering Fund, which supports COVID-19 recovery schemes and other essential projects. The fund has £50,000 available, with grants ranging from £1,000 to £10,000. Eligible projects need to be not-for-profit and have to focus on one or more of the following: COVID-19 recovery, tackling fuel poverty, promoting energy efficiency or gas safety in the home, or promoting STEM-related subjects.

Previous projects have included an education initiative in Yorkshire to support Black, Asian and minority ethnic young women and a South Asian community radio station in Leeds, to name a few.

VPN has partnered with the Victorian State Government to secure the future of Australia's most prestigious professional foot race held in a regional community. The 139th running of the iconic Stawell Gift sprint event took place over the Easter weekend in April 2021 and attracted a total audience of 8,741. Importantly, it also generated greater than AUD\$4 million in direct economic impact from external visitors over the four days of events – which is highly significant for a small regional town with a population of 6,000.

Engaging the Community in Our Green Efforts

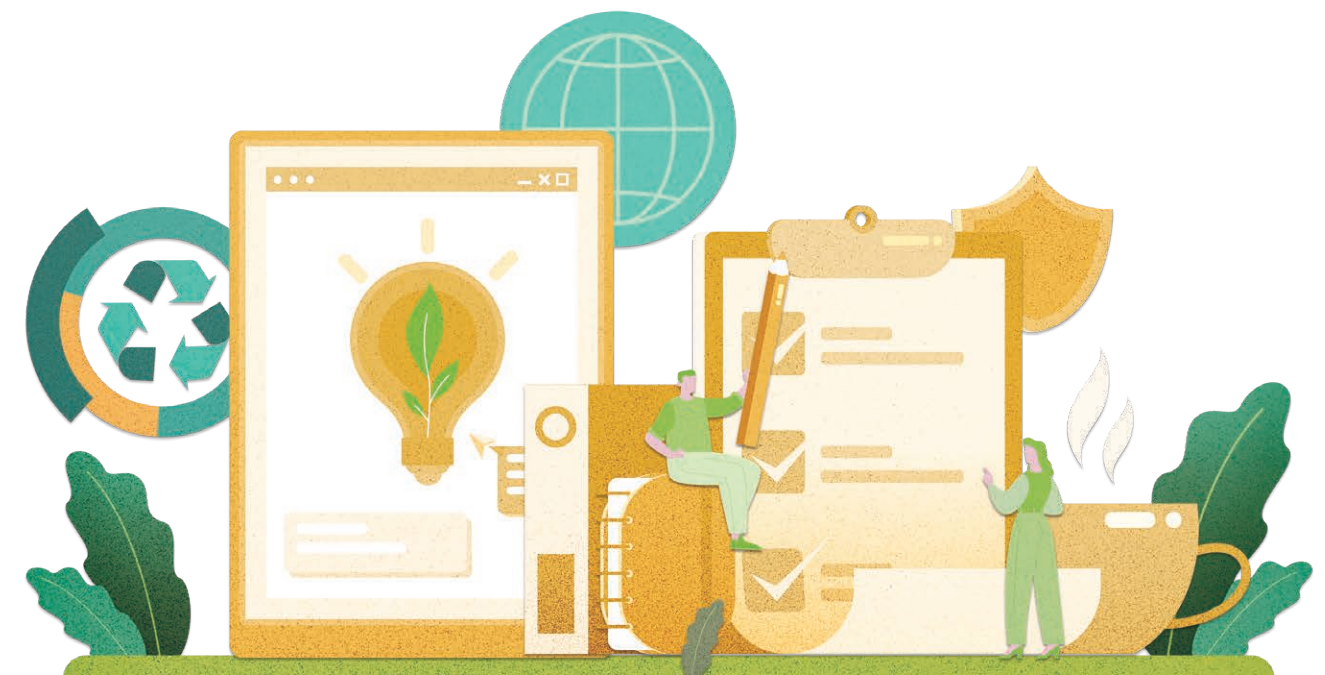
HK Electric injects HK\$5 million annually into the Smart Power Education Fund to promote energy efficiency and conservation, renewable energy and low-carbon lifestyles. Supported by the Fund, HK Electric's Happy Green Campaign organised various education activities on the theme of "Decarbonisation: Our New Mission", including the "Green TV" on social media, and online platforms to promote decarbonisation and related actions to combat climate change, and contribute to Hong Kong's goal of achieving carbon neutrality by 2050.

UKPN is working with local councils in Cambridge, Norwich and London to identify EV charge point blackspots in their areas and considering wider societal benefits from EVs such as improved air quality. By sharing data and expertise, the local authorities and UKPN will develop a blueprint for collaborative working to identify charge point blackspots and, eventually, those communities will achieve the charging infrastructure they need. In 2021, we identified 283 potential locations, that would bring charge points within five minutes' walk of nearly 100,000 people and £2 million of environmental benefits.

AVR holds annual community events where it provides tours and information regarding the AVR business and plans for the future. These events aim to create a better understanding of environmental awareness.

Regulatory Compliance

During the reporting period, we were not aware of any incidents of non-compliance with laws and regulations relating to (i) employment, labour practices, child and forced labour; (ii) occupational health and safety; and (iii) products and services provided and methods of redress, advertising, labelling, and privacy, that have a significant impact on the Group.



About this Report

Reporting Period

This Sustainability Report provides an overview of the Group's sustainability strategies, management approach, progress, and highlights during the year from 1 January 2021 to 31 December 2021, unless otherwise specified.

Reporting Boundary

The information disclosed in this Sustainability Report covers the key businesses of the Group, including the generation of thermal and renewable power, the transmission of electricity, oil and gas, as well as the distribution of electricity and gas in Hong Kong, the United Kingdom, Australia, New Zealand, Mainland China, Thailand, the Netherlands, Canada, and the United States.

Reporting Framework

This Report is prepared with reference to the requirements under the December 2019 updated ESG Reporting Guide (ESG Guide) contained in Appendix 27 to The Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited. The ESG Guide Content Index set out on pages 83 to 88 contains information about the extent to which the Group has applied the ESG Guide and cross-references to the relevant section in this Report.

This Report should be read in conjunction with the Group's Annual Report 2021, which contains a comprehensive review of its financial performance and corporate governance, and also key policies published on the Group's website. For more detailed information on its operating companies' efforts and achievements in sustainability, please refer to their separate sustainability reports or websites.

These, together with further information about our approach to sustainability, policies, ESG ratings content index, can be found online at www.powerassets.com/en/sustainability.

Reporting Principles

The content of this Report follows the ESG Guide reporting principles.

- **Materiality** – We focus on matters that impact business growth and are of importance to our stakeholders. For more information, please refer to “Materiality Assessment” on page 17.
- **Quantitative** – Information regarding the standards, methodologies, assumptions, and/or calculation references, and sources of key conversion factors used for these key performance indicators (KPIs) is stated wherever appropriate.
- **Balance** – This report discloses information in an objective manner, aiming to provide stakeholders with an unbiased picture of the Group's overall sustainability performance.
- **Consistency** – Consistent methodologies are adopted when calculating the quantitative KPIs, unless otherwise specified. Reasons would be provided for any restating of information published in the Report.

Language

In case of inconsistency or discrepancy between the Chinese and English versions of the Report, the English version shall prevail.

Feedback

The Group welcomes feedback on this Report, its approach to sustainability, and performance. Please share your views and email us at sr@powerassets.com.



Environmental Performance Indicators

Environmental KPIs ¹	Unit	2020	2021	
GHG emissions ²				
Total GHG emissions ³	tonne CO ₂ e	8,148,658	8,294,833	
Scope 1 emission ⁴		7,156,111	7,317,255 ⁵	
Scope 2 emission ^{6,7}		992,547	977,578 ⁸	
Total carbon intensity	tonne CO ₂ e/ HK\$'000 revenue	0.338	0.303	
Scope 1 carbon intensity		0.297	0.267	
Scope 2 carbon intensity		0.041	0.036	
Use of energy ⁹				
Total energy consumption ¹⁰	'000 kWh	26,373,014	28,398,291	
Direct energy consumption		25,712,988	27,741,053	
i) Non-renewable energy consumed				
Gasoline/Petrol		5,365	5,044	
Diesel		247,167	234,972	
Natural gas		10,970,402	10,660,988	
Liquified petroleum fuel (LPG)		5,043	204	
Coal and other fuels ¹¹		12,385,721	14,906,247	
ii) Renewable energy consumed				
Wind		Not reported	1,605	
Solar		Not reported	361	
Biomass		2,099,290	1,802,067	
iii) Self-generated energy				
Electricity		Not reported	8,063,181	
Heating		Not reported	415,783	
Cooling		Not reported	—	
Steam		Not reported	78,031	
iv) Sale of energy				
Electricity		Not reported	7,933,616	
Heating		Not reported	415,783	
Cooling		Not reported	—	
Steam		Not reported	78,031	
Indirect energy consumption			660,026	657,238
Electricity			660,026	657,238
Total energy intensity	kWh/ HK\$ revenue	1.094	1.037	
Direct energy intensity		1.067	1.013	
Indirect energy intensity		0.027	0.024	
Air emissions				
NOx emissions	tonne	4,789	4,942	
SOx emissions		656	681	
RSP emissions		136	140	

ESG Guide Content Index

Environmental KPIs ¹	Unit	2020	2021
Use of water ¹²			
Total water consumption ¹³	'000 m ³	964,277	1,127,920
Surface water		33,638	35,009
Groundwater		39	41
Seawater		927,196	1,089,268
Third-party water		2,502	2,636
Other sources		902	966
Water consumption intensity	'000 m ³ / HK\$'000 revenue	40.00	41.19
Waste production			
Total hazardous waste produced	tonne	11,536	12,530
Total non-hazardous waste produced		286,665	248,570
Packaging material			
Total packaging material used for finished products	tonne	8.50	6.76
Paper		8.50	6.76

- 1 Environmental KPIs in this data table are calculated using the equity method. We only include data in the report for 2021 that were confirmed by end of March 2022. If significant changes occur after preparation of this report, they will be updated in the following year's publication.
- 2 The 2020 data figures have been restated in line with update on the energy consumption data.
- 3 Greenhouse gas emissions (GHG) comprise carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride. The data are calculated using local/market-based methodology where applicable under regulation. Otherwise, Scope 1 emissions are calculated using the latest available emission factors in line with the Greenhouse Gas Protocol, IEA's Energy Statistics Manual, USEPA's Emission Factors for Greenhouse Gas Inventories and Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings in Hong Kong (2010 Edition). Scope 2 emissions include the emissions associated with electricity purchased and are calculated based on the IEA's latest available emission factors.
- 4 Scope 1 emission includes emission from fuels processed in sources that were owned or controlled by our businesses for its own use. It also includes fugitive emissions resulted from gas shrinkage for our gas transmission and distribution companies, including AGN, DBP, MGN and NGN.
- 5 The Group's Scope 1 emission slightly increased by 2% year-on-year largely due to increase in the consumption of anthracite for power generation at Jinwan Power.
- 6 Scope 2 emission includes the emission from purchased electricity of our businesses for its own use. It also includes the emission from energy losses from distribution grid and the electricity system transmission grid ("network losses") for our electricity distribution companies, including UKPN, SAPN, VPN, Wellington Electricity and United Energy. Network losses are calculated as the difference between the electricity entering the network, and electricity which is used by customers, for which the data are received from the industry taken from meter readings.
- 7 In 2021, we have updated our approach of calculating Scope 2 emission by adopting market-based approach where applicable, which uses supplier-specific emission rate, to better reflect emissions from electricity purchased by our operating companies. Otherwise, grid-average emission factors based on the IEA's latest available emission factors are adopted. The 2020 data figures have been restated to align with the calculation methodology of 2021 data figures to allow for meaningful comparison of data over time.
- 8 Our operating companies proactively drive a shift to renewable energy through the use of solar panels on-site to power its facilities or purchase of certified renewable energy. These ongoing efforts have led to decrease in Scope 2 emission.
- 9 The 2020 data figures have been restated reflect update on the non-renewable energy consumed and also to report the indirect energy consumption associated with electricity purchased only. Network losses are not considered as indirect energy consumption.
- 10 Total energy consumption = Non-renewable energy consumed + renewable energy consumed + electricity purchased for consumption + self-generated energy which are not consumed – sales of energy.
- 11 Coal and other fuels include anthracite, residual fuel oil, jet kerosene, lubricants, municipal waste (non-biomass fraction), industrial waste and waste oils. The 2020 data figure has been restated in line with re-categorisation of the direct energy consumption by reporting biomass under renewable energy consumed.
- 12 In 2021, we have recategorised the total water consumption by reporting water withdrawal from different sources including surface water, groundwater, seawater, third-party water and other sources water. The 2020 data figures have been restated to align with 2021 data figures to allow for meaningful comparison of data over time.
- 13 The total water consumption increased by 17% year-on-year largely due to increase in the consumption of seawater for unit cooling at Jinwan Power.

Mandatory Disclosure Requirements		Page	Remarks
Governance Structure	A statement from the board containing the following elements: (i) a disclosure of the board's oversight of ESG issues; (ii) the board's ESG management approach and strategy, including the process used to evaluate, prioritise and manage material ESG-related issues (including risks to the issuer's businesses); and (iii) how the board reviews progress made against ESG-related goals and targets with an explanation of how they relate to the issuer's businesses.	12-17	
Reporting Principles – Materiality	(i) the process to identify and the criteria for the selection of material ESG factors; (ii) if a stakeholder engagement is conducted, a description of significant stakeholders identified, and the process and results of the issuer's stakeholder engagement.	16-17	
Reporting Principles – Quantitative	Information on the standards, methodologies, assumptions, and/or calculation tools used, and source of conversion factors used, for the reporting of emissions/energy consumption (where applicable).	80-82	
Reporting Principles – Consistency	The issuer should disclose in the ESG report any changes to the methods or KPIs used, or any other relevant factors affecting a meaningful comparison.	80-82	
Reporting Boundary	A narrative explaining the reporting boundaries of the ESG report and describing the process used to identify which entities or operations are included in the ESG report.	80	

Subject Areas, Aspects, General Disclosures and KPIs		Page	Remarks
A. Environmental			
Aspect A1: Emissions			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste	24-51	<ul style="list-style-type: none"> Environmental Policy Supplier Code of Conduct
KPI A1.1	The types of emissions and respective emissions data	27; 81	
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	27; 81	
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g., per unit of production volume, per facility)	82	
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g., per unit of production volume, per facility)	82	
KPIA1.5	Description of emission target(s) set and steps taken to achieve them	18-19; 25-26	
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them	48-49	
Aspect A2: Use of resources			
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials	22-51	<ul style="list-style-type: none"> Sustainability Policy Environmental Policy Supplier Code of Conduct
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility)	27; 81	
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility)	82	
KPI A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them	18-19; 45	
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them	47	

Subject Areas, Aspects, General Disclosures and KPIs		Page	Remarks
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced	82	
Aspect A3: The Environment and Natural Resources			
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources	44-49	<ul style="list-style-type: none"> Environmental Policy Supplier Code of Conduct
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the action taken to manage them	44-49	
Aspect A4: Climate Change			
General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	24-26; 43	<ul style="list-style-type: none"> Environmental Policy
KPI A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	24-43	
B. Social			
Aspect B1: Employment			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare	54-56; 59-61; 79	<ul style="list-style-type: none"> Code of Conduct
KPI B1.1	Total workforce by gender, employment type, age group and geographical region	57	
KPI B1.2	Employee turnover rate by gender, age group and geographical region.	57	
Aspect B2: Health and Safety			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards	62; 79	<ul style="list-style-type: none"> Health and Safety Policy
KPI B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	–	0 work-related fatality during the year; 0 for 2020; 1 for 2019
KPI B2.2	Lost days due to work injury	–	1,213 lost days due to work injury

Subject Areas, Aspects, General Disclosures and KPIs		Page	Remarks
KPI B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored	62-68	
Aspect B3: Development and Training			
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	58-59	
KPI B3.1	The percentage of employees trained by gender and employee category	58	
KPI B3.2	The average training hours completed per employee by gender and employee category	58	
Aspect B4: Labour Standards			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour	79	<ul style="list-style-type: none">• Human Rights Policy• Modern Slavery and Human Trafficking Statement• Supplier Code of Conduct
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour	–	
KPI B4.2	Description of steps taken to eliminate such practices when discovered	–	
Aspect B5: Supply Chain Management			
General Disclosure	Policies on managing environmental and social risks of the supply chain	71	<ul style="list-style-type: none">• Human Rights Policy• Modern Slavery and Human Trafficking Statement• Supplier Code of Conduct
KPI B5.1	Number of suppliers by geographical region	73	
KPI B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored	72-73	
KPI B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	72-73	
KPI B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	72-73	

Subject Areas, Aspects, General Disclosures and KPIs		Page	Remarks
Aspect B6: Product Responsibility			
General Disclosure	Product Responsibility Policies and compliance with relevant laws and regulations on health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress	63-65; 69; 75; 79	<ul style="list-style-type: none"> • Code of Conduct • Personal Data Privacy Policy
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	–	This indicator is not considered material to the Group hence such data are not disclosed.
KPI B6.2	Number of products and service-related complaints received and how they are dealt with.	75	
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights.	–	Our Code of Conduct outlines our commitment to intellectual property rights protection.
KPI B6.4	Description of quality assurance process and recall procedures.	63-65	
KPI B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	69	<ul style="list-style-type: none"> • Information Security Policy • Personal Data Privacy Policy
Aspect B7: Anti-corruption			
General Disclosure	Information on: <ul style="list-style-type: none"> (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering 	20-21	<ul style="list-style-type: none"> • Code of Conduct • Anti-Fraud and Anti-Bribery Policy <p>No recorded cases of non-compliance with laws and regulations relating to anti-corruption and bribery during the reporting period.</p>
KPI B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases	–	No such cases recorded during the reporting period.
KPI B7.2	Description of preventive measures and whistleblowing procedures, how they are implemented and monitored	21	<ul style="list-style-type: none"> • Whistleblowing Procedure
KPI B7.3	Description of anti-corruption training provided to directors and staff.	21	

Subject Areas, Aspects, General Disclosures and KPIs

Page

Remarks

Aspect B8: Community Investment

General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests	74	<ul style="list-style-type: none"> Sustainability Policy
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	74-78	
KPI B8.2	Resources contributed (e.g. money or time) to the focus area	74-78	





Power Assets Holdings Ltd.
電能實業有限公司

