CEO's Report

Tsai Chao Chung, Charles
Chief Executive Officer

Power Assets is a low-volatility focussed, long-term investor in the global energy market. Our investments mostly comprise low-risk companies in mature energy economies with operations further down the value chain so that they are minimally exposed to adjustments in the prices of coal, oil and natural gas. Our operations are diversified across electricity generation, transmission and distribution, gas transmission and distribution, as well as oil storage and transmission and energy from waste.

Birds-eye view of the solar farm at EDL's Jabiru Hybrid Renewable Power Station, Australia.

The revenue frameworks of our operating companies mainly follow one of two models: either they are regulated, or are covered by long-term offtake contracts. This emphasis on low risk and low volatility enables us to fulfil our mission of delivering long-term sustainable returns in mature international markets.

In 2022, operating results were satisfactory across our portfolio. All our operating companies met regulatory and operational targets, leading their respective sectors in essential parameters like energy efficiency, reliability, and customer service.

Global momentum towards carbon reduction continues to build. The 27th United Nations Climate Change Conference of the Parties (COP27) held in November 2022 in Sharm El-Sheikh, Egypt, resulted in countries delivering a package of decisions that reaffirmed their commitment to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels. A commitment to phase down fossil fuels in generation was also reached, making a global transition to gas-fired and renewables generation even more urgent.

Our operating companies continued with long-term initiatives to support the efforts of their respective economies to achieve this transition. They are running trials, pilot projects, stakeholder engagement activities, and research, to move the electricity and gas sectors into a zero-carbon regime.

Gas-fired generation, renewables and energy from waste now play a significant role in our global generation. We are actively seeking to invest in other innovative generation business such as energy from landfill gas or hybrid energy. Our transmission and distribution of electricity operations are investing in technology to manage dynamic network loads unlike any seen before: unpredictable spikes and troughs in electricity supply caused by renewables generation, and much higher network loads caused by charging of electric vehicles (EVs).

Our gas distribution operations, particularly in the UK and Australia, are spearheading industry efforts to migrate to blended green hydrogen into natural gas distribution network.

UNITED KINGDOM

The UK is a large and strategically significant market for the Group. Our presence here is characterised by low volatility and operational diversification, spanning electricity generation and distribution, and gas distribution. Our operations support over 13.7 million domestic, commercial, and industrial customers with reliable and affordable electricity and heating. We are at the forefront of the industry in facilitating the country's transition to net-zero carbon. Our electricity networks invested in research and innovation to handle unpredictable flows and loads associated with renewables generation and the widespread electrification of private and public transport. We are also working on research and pilots with the goal of adapting our gas networks to transport hydrogen in the future.

During the year, our electricity distribution business progressed with the groundwork and stakeholder engagement surrounding an impending regulatory reset in April 2023.

2022 saw macro-political and macro-economic uncertainty and associated cost pressure. Organisational resilience was tested by three significant storms – Dudley, Eunice, and Franklin – which caused considerable disruption to electricity networks. All our operating companies responded quickly and decisively to curtail disturbance to our customers.

Ofgem officials review how UKPN's Distribution System Operator plans could balance the energy system at a local level.

UK Power Networks

UK Power Networks (UKPN) is one of the largest electricity distribution network owners in the UK, covering an area of approximately 30,000 sq. km. It accounts for 28% of the UK's total electricity distribution serving for 8.4 million customers. UKPN also operates private electricity networks for major airports and railways.

UK Power Networks

Power Assets Interest: **40%**	Joined Since: **October 2010**
Network Length: **189,800 km**	No. of Customers: **8,400,000**

UKPN delivered its strong network reliability, best-ever safety performance and maintained its industry leadership on both customer service and stakeholder engagement. These achievements against targets enabled it to retain its spot as the best performing distribution network operator in the UK for the sixth consecutive year. The company played its part in keeping electricity affordable for consumers, charging below the industry average for use of the distribution system.

One of the company's strategic goals is to be an employer of choice. Thanks to an ethos of empowerment and support, UKPN was ranked second in the Sunday Times 25 Best Big Companies to Work For list, the eighth consecutive year on the list. It was named the Best Big Company to work for in London, and Employer of the Year at the Utility Week Awards.

Transport accounts for 28% of total emissions in the UK, and a complete switchover to EVs is necessary to meet net-zero goals. Over four million EVs will connect to UKPN's networks by 2030, and ensuring reliable, adequate charging at scale is a priority for the company.

In 2022, UKPN developed a digital self-service platform for consumers to upgrade their electricity supply when they purchase an EV or any other low-carbon technology. This service reduces application time from 10 days to a matter of minutes.

The company began to roll out a widespread network of charge points across London, Kent, Cambridge, and Norwich.

UKPN's business plan for the 2023-2028 regulatory period focussed on facilitating the UK's Net Zero by 2050 target, and was approved by the regulator Ofgem, ensuring predictable revenues and cash flow. As a key distribution network operator, UKPN is at the centre of the energy system transition and is a catalyst for the migration of other industries away from fossil fuels. To fast track this process, UKPN is building new capabilities to create a future-ready network as an independent Distribution System Operator.

Helping vulnerable customers stay connected

Rising energy bills, driven by increases in wholesale fuel prices, are putting additional pressure on the vulnerable. Our UK operating companies reached out to those in need to lend a helping hand.

UKPN maintains a Priority Services Register of more than two million vulnerable customers, ranging from elderly individuals living alone, to people who are medically dependent on electricity. These customers receive tailored support when needed, such as in the event of a power cut. In 2022, the company expanded a fuel poverty programme with advice provided to about 900,000 customers, out of whom 15,735 received in-depth, personalised support.

Under its Fuel Poor Network Extension Scheme, Wales & West Utilities (WWU) funded gas connections to 1,187 underprivileged homes with a value of £2.8 million. It also established a Fuel Bank Foundation fund of £500,000 along with other gas networks to help customers pay for their energy over two years in the face of increases in the cost of living. It can be used to provide same- or next-day emergency financial support to people who cannot afford to top up their prepayment gas and electricity meters.

Northern Gas Networks

Northern Gas Networks (NGN) runs the North of England Gas Distribution Network, one of the eight distribution networks in the UK. It supplies gas to 2.7 million customers via 36,100 km of gas distribution pipelines, transporting about 13% of the UK's gas. It also maintains and modernises gas mains within its network and provides essential gas connections and gas emergency services.

Northern Gas Networks

Power Assets Interest: **41.29%**	Joined Since: **June 2005**
Gas Pipeline Length: **36,100 km**	No. of Customers: **2,700,000**

NGN's total gas throughput for 2022 was 63,754 GWh (2021: 68,803 GWh). Customer satisfaction remained a key priority, with scores for customer satisfaction in regulator surveys averaging 9.2 out of 10 across planned repair, and new connection work in the regulatory year.

During the year, NGN undertook a third-party review of progress on societal and environmental matters aligned with the United Nations Sustainable Development Goals to serve as the basis for future improvement. NGN scored 74% on the assessment, compared to an industry average of 47%.

The company continued to invest systematically in alignment with an overall £800 million budget for five years on network improvement to increase efficiency, reliability and safety.

Alongside other Group gas distribution companies in the UK and Australia, NGN collaborated with industry partners to accelerate industry-wide adoption of hydrogen blended with natural gas for household and industrial heating. Specific initiatives in this regard included the East Coast Hydrogen network, which will be able to connect 7-GW of hydrogen production by 2030, exceeding the government's 5-GW target. Feasibility studies and stakeholder engagement and education took place during the year.

Another step forward in the hydrogenation of the gas network was the submission of a proposal to the regulator for 100% hydrogen supply to the Redcar area by 2025. While hydrogen is not new to the UK's gas network, the Redcar hydrogen community would be amongst the first to use 100% green hydrogen. If approved, NGN will work with the community to replace any gas-burning appliances in households and businesses with hydrogen-burning ones at no cost to consumers.

NGN's Hydrogen Home, a flagship facility showcasing how gas-burning appliances can be replaced with hydrogen-burning ones, welcomes its 2,000th set of visitors.

WWU's main replacement programme installs long-lasting PVC pipes that can transport hydrogen, reducing leaks and improving safety.

Wales & West Utilities

Wales & West Utilities (WWU) is a gas distribution network operator serving Wales and South West England with 2.6 million customers and covering an area of 42,000 sq. km. of a diverse mix of urban and rural geography.

Wales & West Utilities

Power Assets Interest: **36%**	Joined Since: **October 2012**
Gas Pipeline Length: **35,000 km**	No. of Customers: **2,600,000**

In 2022, WWU achieved a total gas throughput of 54,300 GWh (2021: 59,562 GWh) and led the gas distribution industry in the UK for the lowest number and duration of planned interruptions. Satisfaction remained strong, with customers rating the company 9.1 out of 10. Complaint volumes have halved over eight years, and 78% of complaints were resolved within one working day.

Proactive maintenance and main replacement work allowed the company to cut wastage caused by gas network leakage by 16%. More demanding targets have been set in the new regulatory period that commenced in 2021. WWU's ongoing mains replacement programme and proactive pressure management will help reach this target. More than 410 km of new gas mains were laid during the year.

WWU maintained its support for biomethane as a greener alternative to natural gas. WWU has cumulatively connected 20 biomethane plants to its network since 2013, decarbonising the gas supplied to approximately 150,000 homes – the equivalent of supply to a city the size of Cardiff. Fifty-one new gas-fired peaking power stations have been connected to the network since 2013, which can support almost a million homes. These 'backup generators' are essential to increase the reliability of renewable electricity infrastructure, coming into action when renewable energy production is low.

A new telematics system was rolled out across the operational fleet. The data collected will provide better insights into WWU's environmental performance.

WWU continued its strategic collaboration with other operating companies in the UK to lead the industry in decarbonisation efforts, rolling out hybrid gas-electricity solutions for households and businesses.

Seabank Power

Seabank Power (SPL) is the Group's UK generation business, operating two combined-cycle gas turbine units with a capacity of 1,151 MW. SPL's output is governed by a long-term contract with a single customer with stable earnings over the years.

Seabank Power

Power Assets Interest: **25%**	Joined Since: **June 2010**
Gas-Fired Combined Cycle Gas Turbine: **1,151 MW**	

SPL generated 4,724 GWh (2021: 2,945 GWh) of power during the year, based on a pre-agreed running regime with its customer. Key operating parameters such as load factor, number of starts, and operating hours were higher than budget, reflecting higher demand and more flexible plant operations in the balancing market. The offtake contract with the customer was transformed into a full tolling agreement during the year, further reducing market risk in return for a 100% availability-based contract.

HONG KONG

HK Electric generates and supplies electricity to customers on Hong Kong Island and Lamma Island. First established more than 130 years ago, it is the Group's flagship company and is part of the infrastructure that makes Hong Kong a world-class financial and professional services centre.

The Hongkong Electric Company

Power Assets Interest:	Total Installed Capacity:	No. of Customers:
33.37%	**3,402 MW**	**586,000**
Year Established:	Network Length:	
1889	**6,900 km**	

HK Electric delivered a total of 9,941 GWh (2021: 10,361 GWh) of electricity in 2022, of which more than 50% was generated from natural gas. The company is steadily migrating from a coal-fired to gas-fired regime in alignment with the Hong Kong government's Clean Air Plan 2035.

A number of steps were taken to maintain generation reliability in the face of fuel supply disruptions and resultant volatility in prices that prevailed throughout 2022. With the help of installed emission-control facilities including flue gas desulphurisation plants, low-nitrogen-oxide burner systems and electrostatic precipitators, the company kept emissions of sulphur dioxide, nitrogen oxides, and respirable suspended particulates within statutory limits.

HK Electric's longstanding excellent supply reliability and customer satisfaction standards were maintained. The average customer satisfaction index from after-service surveys was 4.71 out of a 5-point scale. A supply reliability rating of over 99.9999% was achieved for the third consecutive year, thanks to proactive network maintenance, and state-of-the-art monitoring and diagnostics technologies. A next-generation geospatial information system was rolled out to improve the speed of addressing network faults.

The company entered the final phase of its HK$26.6 billion 2019-2023 Development Plan, which seeks to establish a generation regime that will help Hong Kong achieve its carbon reduction goals. L11, a second new 380-MW gas-fired combined-cycle generating unit under the Development Plan, was put into commercial operation in May 2022. The successful commissioning of L11 together with the retirement of a coal-fired unit and an older gas-fired unit, bring the overall gas-fired generating capacity of Lamma Power Station to 1,095 MW. Civil construction of the main station and support buildings, cooling water intake, and other associated structures for the third gas-fired generating unit, L12, was substantially completed in 2022. The unit is planned for commercial launch in early 2024.

The construction of an offshore liquefied natural gas terminal in Hong Kong reaches critical milestones. It will enable the import of natural gas through marine routes.

Smart meters and the associated advanced metering infrastructure will help HK Electric's customers optimise their energy usage.

Construction of an offshore liquefied natural gas (LNG) terminal using Floating Storage and Regasification Unit technology moved forward, to enable the import of LNG through marine routes. Structures, subsea pipes, and other infrastructure were put into place and key equipment was commissioned for the terminal to commence operation in mid-2023.

HK Electric's 0.8-MW Lamma Winds and 1.1-MW solar power system generated over 2 GWh of green electricity in 2022. About 150 new renewable energy systems installed at customer sites were connected to the grid under the Feed-in Tariff Scheme, taking the total capacity and annual output of grid-connected customers' renewables to more than 7 MW and 6 GWh respectively. The company is progressing various initiatives to increase renewable energy in consultation with the Hong Kong government.

Migrating to a smart metering setup will enable HK Electric's customers to save energy and cut their carbon footprints. The company aims to roll out smart meters across its entire customer base by 2025 and achieved its cumulative target of having more than 240,000 smart meters deployed by the end of 2022.

Support for electric transportation has long been one of the company's key strategies. It has provided free technical advice to the government, public transport operators, and residential property managers to enable installation of charging facilities for almost 50,000 car parking spaces.

Enormous cost pressure and supply scarcity of coal and natural gas triggered upward adjustments of the fuel clause charge component of the tariff. To alleviate the impact of this increase as much as possible, HK Electric continued to offer a suite of relief measures including the distribution of dining coupons and financial assistance and subsidies to support the underprivileged.

Helping customers overcome economic hardships

High volatility in the supply and price of natural gas and coal had a knock on impact on HK Electric's tariffs. To support underprivileged customers from the impact, the company implemented a range of relief measures. These ranged from HK$200 dining coupons that 50,000 low-consumption and underprivileged households could redeem at small cafes and restaurants, to bill payment deferral for SME caterers and subsidies for households in sub-divided units.

The underprivileged households often suffer the double disadvantage of not being able to save on energy costs because they cannot afford to upgrade to more energy-efficient appliances. These households were provided with free appliances as well as technical support for rewiring, meter installation, and more. Subsidies totaling HK$25 million were provided to building owners to help them enhance the energy efficiency performance of their buildings.

AUSTRALIA

Since 2000, Australia has developed into one of the Group's largest markets of operation. Our portfolio there spans renewables, and energy from landfill gas and waste coal mine gas, as well as the transmission and distribution of electricity and gas. It is a flagship market for advancing solar power, hybrid energy systems, and energy from landfill gas.

The Australian Energy Regulator (AER) completed a comprehensive review of its Rate of Return Instrument, which plays a crucial role in determining the revenues for all our operating companies. It has set key parameters that underpin the allowed rate of return for future period. Engaging with the regulator and achieving synergies in their submissions was a key focus for all our Australian operating companies during the year.

South Australia's adoption of solar power systems stands at nearly 35% of households. Rooftop solar alone can generate almost 80% of the state's energy needs and, combined with large, utility-scale solar farms, even 100% at certain periods – a world first in gigawatt-scale power systems. Our distribution networks are working actively to evolve into smart networks capable of dynamic two-way energy flows in this new, sustainable future.

Our Australian gas companies are working with the government to help increase the production of green hydrogen and make Australia an exporter of hydrogen to other countries. Green hydrogen can significantly drive down emissions when blended with natural gas for household heating, cooking and hot water or power generation, as hydrogen combustion produces only water vapour, rather than carbon.

Integrating these disruptive new developments while maintaining reliability, affordability, and excellent customer service is the key priority for our Australian businesses.

AGN's zero-emissions 1.25-MW electrolysis plant in South Australia creates green hydrogen and enables completely zero-carbon heating.

At SAPN's transformer workshop, skilled workers conduct maintenance for optimal equipment function.

SA Power Networks

SA Power Networks (SAPN) is an electricity distributor in the state of South Australia. SAPN serves 907,000 residential and business customers and manages about 90,000 km of electricity distribution networks.

SA Power Networks

Power Assets Interest: **27.93%**	Joined Since: **January 2000**
Network Length: **90,200 km**	No. of Customers: **907,000**

SAPN distributed 9,832 GWh of electricity in 2022 (2021: 9,634 GWh). More than 507 MW of distributed energy resources were connected to the network, covering more than 34,000 customers. Key metrics like unplanned power interruptions and network reliability outperformed targets and secured incentive payments from the regulator. SAPN continued to invest in several network improvement projects to manage future performance. These included network automation and initiatives to mitigate the impact of Grey Headed Flying Foxes (bats) on the network.

The South Australian distribution network is experiencing an increasing volume of reverse power flows due to the very high penetration of distributed energy resources (solar and battery systems) connected to it. To maintain state-wide security of supply with unpredictable two-way power flows, the AER approved an application from the company to pass through additional capital expenditure, which will allow SAPN to make key investments in emergency management facilities.

Enerven, a wholly-owned subsidiary of SAPN, has secured a project to construct a substation for a critical component in one of the largest road infrastructure expansion projects in South Australia: the 10.5 km Torrens-to-Darlington tunnel.

Aerial inspections take place to ensure SAPN's network remains safe from bushfires and can reliably meet higher power demand in the warmer months.

Managing a new era of distributed generation

South Australia is a forerunner of things to come in electricity distribution. Rooftop solar systems are deployed by 35% of customers, at certain times generating over 80% of the state's energy in tandem with large-scale solar farms.

A system that can handle this new network landscape is essential to enable a future powered by reliable, abundant, low-cost, and zero-carbon energy. SAPN has developed a comprehensive set of strategies to facilitate this energy transition, including:

- Managing voltage dynamically to allow the network to host fluctuating system loads
- Setting up systems to enable distributed energy resources to respond to network capacity in real time and export to the energy market
- Deploying time-of-use tariffs to distribute load and generation during times that benefit the network
- Lobbying for regulatory reform to remove barriers to investment in renewables
- Evolving to a new role as a distribution system operator, managing tens of thousands of distributed energy resources on behalf of the Australian Energy Market Operator

Victoria Power Networks

Victoria Power Networks (VPN), through CitiPower and Powercor Australia, is an electricity distributor in Australia's Victoria state, managing 100,200 km of networks and serving approximately 1.3 million customers.

Victoria Power Networks

Power Assets Interest:
27.93%

CitiPower	Powercor
Joined Since:	Joined Since:
July 2002	**September 2000**
Network Length:	Network Length:
7,500 km	**92,700 km**
No. of Customers:	No. of Customers:
337,000	**925,000**

VPN sold 16,518 GWh of electricity during the year, compared to 16,076 GWh in 2021. Both CitiPower and Powercor networks continued to experience customer growth with 24,889 new connections.

Powercor successfully completed major improvements to allow more than 185,000 homes to export excess rooftop solar power to the grid for use by businesses across western Victoria. The company upgraded more than 700 individual items of work on 53 zone substation supply areas and other electrical infrastructure, successfully increasing network capacity.

Beon Energy Solutions, a subsidiary of VPN, has continued to lead the solar farm construction sector. In 2022, commercial operations began on the 240-MW Avonlie Solar Farm in New South Wales, while construction was completed on the 115-MW Metz Solar Farm in New South Wales, and the 18-MW Eastern Treatment Solar Farm and the 9-MW Winneke Solar Farm in Victoria.

Following major storm damage in 2021, VPN implemented a number of initiatives to enhance faults communications capabilities and on-the-ground

emergency support. In 2022, the company deployed its first mobile emergency response vehicle, fully equipped to support communities impacted by extended outages. The vehicle is now a central hub for Powercor to provide localised updates to communities, together with an on-board generator, flood lighting, and phone charging facilities for residents, among other equipment. Improvements to SMS customer messaging relating to outage restoration times were also rolled out.

Powercor engineers replace power poles in western Victoria to increase network safety and resilience.

Australian Gas Networks

Australian Gas Networks (AGN) distributes natural gas to approximately 1.4 million customers across Victoria, South Australia, Queensland, New South Wales, and the Northern Territory. It has a network length of nearly 27,000 km.

Australian Gas Networks

Power Assets Interest: **27.51%**	Joined Since: **August 2014**
Gas Pipeline Length: **27,000 km**	No. of Customers: **1,400,000**

AGN's total gas deliveries amounted to 98 million GJ, lower than 2021. The decrease was due to warmer weather in the first part of the year and slight decline in demand from larger customers.

The company outperformed customer satisfaction targets and achieved excellent safety performance. To maintain network performance and minimise leakage, it replaced about 260 km of old cast iron and unprotected steel pipelines with polyethylene.

Following extensive groundwork, AGN submitted its plan to the regulator for the new regulatory period, which commences in 2023. The company ran a comprehensive stakeholder engagement campaign during the preparation of the plan in collaboration with other industry participants. The campaign received an industry award recognising its value-driven engagement.

Hydrogen-related projects remained a key priority. Following previous success, AGN expanded its efforts and made progress on hydrogen projects in Murray Valley, South Australia, and Gladstone, which will provide green hydrogen for residential and industrial use.

AGN's customer service standards are highly rated by around 1.4 million customers.

CK William

CK William owns and operates four energy companies across electricity and gas distribution and sustainable distributed energy production. These include (i) Dampier Bunbury Pipeline and AGI Development Group (collectively known as "DBP"), (ii) Multinet Gas (MG), one of Victoria's three gas distribution networks, (iii) United Energy (UE), an electricity distribution business in Victoria, and (iv) Energy Developments Pty Ltd (EDL), a global generation company specialising in energy from sustainable sources.

CK William

Power Assets Interest: **20%**	Joined Since: **May 2017**
Network Length: **13,500 km**	No. of Customers: **1,429,000**
Gas Pipeline Length: **14,200 km**	Total Installed Capacity: **1,042 MW**

DBP's total gas throughput averaged 1,090 TJ/day, compared to 1,060 TJ/day in 2021. A pipeline upgrade project in the Waitsia area will expand capacity and system capabilities, allowing it to connect a new gas plant while continuing to supply existing customers in the Pilbara and Perth metropolitan areas.

EDL had a total global installed capacity of 1,042 MW mostly in sustainable distributed energy solutions, with Australia accounting for more than 73% of operations. Global generation output in 2022 dropped by 5.5% due to declines in gas availability, customer demand and the conversion of two power stations to renewable natural gas (RNG). The conversion to RNG resulted in a 44% increase in gas production in 2022. The company's output offset about 4.1 million tonnes of carbon emissions, equivalent to removing about 1.2 million cars from the road. EDL commenced operations of the Jabiru Hybrid Renewable Power Station in the Northern Territory, supplying green electricity to the town of Jabiru.

UE completes a major upgrade to the Sandringham Zone Substation as part of a multi-million network enhancement project.

EDL's Agnew hybrid renewable microgrid supplies green energy with battery storage to the Gold Fields' Agnew gold mine community.

MG recorded sales of 54.5 TJ in 2022, lower than 2021, which may be attributed to a combination of warmer weather and reduced residential consumption. The collaborative hydrogen-related project with AGN (Hydrogen Park Murray Valley project) progressed. The company ran a major promotional campaign educating consumers on the benefits of appliances powered by natural gas, focussing on the emissions benefits when green hydrogen is used. Customer and stakeholder engagement and feedback improved over previous years, as did assistance to vulnerable customers. MG submitted its final plan to the regulator for the 2023 reset.

UE sales stood at 7,723 GWh (2021: 7,475 GWh) of electricity during the year due to increased demand. The network continued to experience customer growth with 9,000 new connections. More than 108,000 residential rooftop solar systems (473 MW) are presently connected. UE exceeded benchmarks in customer service and reliability. Forty pole-top batteries with a total capacity of 1.2 MW were installed in Melbourne, significantly improving system stability and reliability. UE also completed widespread system upgrades to support increased uptake of rooftop solar power systems, improving power quality for more than 40,000 homes and businesses.

AEO's network infrastructure connects more than 800 MW of wind energy to the grid.

Australian Energy Operations

Australian Energy Operations (AEO) builds, owns, and operates electricity transmission lines and terminal stations that connect the Mt Mercer, Ararat, Moorabool, and Elaine wind farms to the national power grid. The company supported Australia's energy transition and already has more than 800 MW of wind farm connections directly to its network assets.

Australian Energy Operations

Power Assets Interest: **50%**

Joined Since: **July 2012**

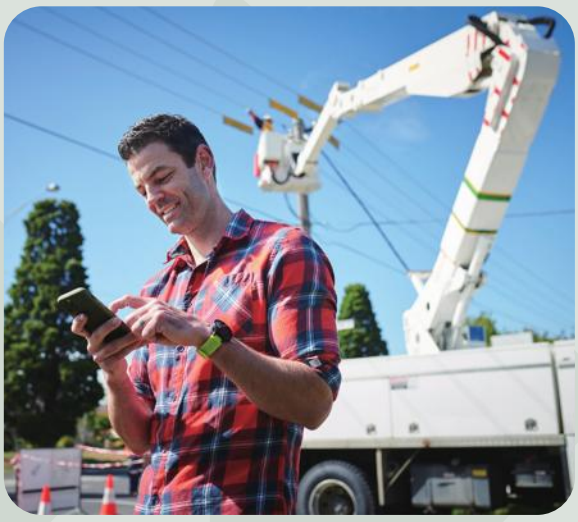
Network Length: **71 km**

AEO delivered reliable operations during the year. It was awarded a 20-year system strength contract for the development, construction and operation of a 250-MVA synchronous condenser located adjacent to its Ararat Terminal Station. The facility will commence operations in 2025, connecting 600 MW of renewable generation to the grid, strengthen the power system and increase renewable generation capacity in Victoria, Australia.

Digitalisation of customer services

In Australia, providing first-class digital interactions is a key priority for VPN and UE. To meet increasing demand and evolving customer preferences, the two companies launched a range of innovative digital customer experiences. Most notable among these was the launch of a "virtual front counter", with single-sign-on functionality. Customers can use this to submit connection requests; track projects end to end; check on the status of fault restoration; and submit complaints, claims or compliments. The platform stores all documentation and forms, allowing customers to go totally paperless.

UE also launched a new platform, 'UEConnect', offering a more streamlined connections process for electricians and consumers.



MAINLAND CHINA

Our assets in Mainland China consist of one power plant in Jinwan (Guangdong province) and two wind farms in Dali (Yunnan province) and Laoting (Hebei province).

In March 2022, the National Development and Reform Commission released the 14th Five Year Plan for a modern energy system, which among other goals, targets for non-fossil fuel sources to account for around 39% of power generation and approximately 20% of power consumption by 2025. In this context, our power plant and wind farms continued to deliver reliable results and run operations with minimal emissions.

Jinwan Power Plant

Operating under a long-term joint venture agreement with a partner in Mainland China, the Jinwan co-generation power plant owns two coal-fired heat and power generating units with a total capacity of 1,200 MW in Guangdong province.

Jinwan Power

Power Assets Interest:	Joined Since:
45%	**April 2009**

Coal-Fired:
1,200 MW

Electricity sold by the Jinwan power plant was 6,052 GWh (average of 2019 to 2021: 4,467 GWh), with average tariff up by 20% as compared with 2021 due to strong industrial demand, higher temperatures, and low electricity supply from Western China. Approximately 4.65 million GJ of steam was generated, higher than 3.72 million GJ in 2021. Jinwan outperformed all statutory emission caps.

Volatile coal prices continued to affect the sector, despite pricing and supply reform in the upstream coal market. In response, Jinwan continued with cost-saving programmes and increased the average tariff. The plant's demineralised water system was expanded to prepare for future growth in demand for low-pressure steam in the Gaolan industrial zone. After completion, the system will increase the plant's steam supply capacity from 200 t/h to 320 t/h.

A turbine efficiency study was conducted to determine whether a steam path retrofit would help improving the efficiency of the plant's turbines, and a development plan will be finalised in 2023.

The Jinwan Power Plant's maintenance and repair programme minimises emissions while maintaining performance.

Dali and Laoting Wind Farms

The Dali and Laoting wind farms have a combined capacity of 97.5 MW.

In 2022, performance of the two wind farms was stable with 191 GWh of electricity generated. The output of the two wind farms jointly offset 166,240 tonnes of carbon emissions.

The Group's renewables investments include wind farm at Dali in Yunnan province.

Dali Wind Power & Laoting Wind Power

Power Assets Interest:	Joined Since:	Wind Turbine:
45%	December 2007	48 MW
45%	June 2008	49.5 MW

THAILAND

Ratchaburi Power Company

Ratchaburi Power Company (RPCL) is a 1,400-MW generation company located in the Ratchaburi province in Thailand. Its revenues are guaranteed by a 25-year take-or-pay Power Purchase Agreement with Thailand's Electricity Generating Authority.

Ratchaburi Power

Power Assets Interest:	Joined Since:
25%	October 2001

Gas-Fired Combined Cycle Gas Turbine: **1,400 MW**

RPCL generated 1,075 GWh of electricity in 2022 and exceeded its operating targets on availability, capacity factor, and plant operations. This strong performance enabled it to secure availability payments from the regulator. Additional fuel cost savings were achieved from optimised operations.

RPCL's strong safety performance secured several prestigious awards from the government and public organisations such as the Thailand Institute of Occupational Safety and Health.

CANADA

Canada is one of the Group's strategic locations, with a stable and mature energy market and a strong focus on decarbonisation. In response, we began migrating our generation infrastructure from coal to gas-fired in 2020.

The North American crude oil market environment was robust throughout 2022. The sustained economic recovery resulted in increased customer production and throughput volumes that returned to near pre-pandemic levels. However, Canada was not immune to macro-economic issues such as energy price fluctuations and inflationary pressures. Despite this volatility, our operating companies delivered stable revenue streams under long-term offtake contracts.

Canadian Power's Okanagan wind farm supplies renewable electricity to British Columbia.

Canadian Power Holdings

Canadian Power Holdings operates a portfolio of power plants and wind farms with a total capacity of 1,314 MW.

TransAlta Cogeneration

Power Assets Interest:	Joined Since:	Total Installed Capacity:
25%	December 2007	1,064 MW

Meridian

Power Assets Interest:	Joined Since:	Gas-fired Combined Cycle Cogeneration:
50%	December 2007	220 MW

Okanagan Wind Power

Power Assets Interest:	Joined Since:	Wind Turbine:
50%	June 2021	30 MW

2022 marked the first full year of fully gas-fuelled operations for the Sheerness power plant, enabling it to cut carbon emissions by about 50%. The Sheerness and four other power plants produced a total of 3,564 GWh of electricity. The two wind farms operated by Okanagan

Wind sent out 82 GWh of green electricity to offset carbon emissions. All plants met their operating targets for availability, performance and efficiency.

Husky Midstream Limited Partnership

Husky Midstream Limited Partnership (HMLP) operates approximately 2,300 km of crude oil-gathering systems and pipelines in Alberta and Saskatchewan. Its crude oil pipelines have a capacity of approximately 409,000 barrels per day and serve 12 customers. HMLP also operates storage terminals in Lloydminster and Hardisty, with a storage capacity of approximately 5.9 million barrels.

To ensure asset and employee safety, an expert working for HMLP demonstrates fire prevention procedures at Lloyd Terminal.

Husky Midstream Limited Partnership

Power Assets Interest:	Joined Since:	Oil Pipeline Length:
48.75%	**July 2016**	**2,300 km**

Oil Storage Capacity:	Pipeline Gathering System Capacity:
5.9 million barrels	**409,000 barrels/day**

In 2022, HMLP met operational targets for its midstream pipeline and terminal assets in Alberta and Saskatchewan and its gas infrastructure assets in Alberta. Fifty-six customers were active within the Hardisty terminal during the year, which had a throughput of approximately 570,000 barrels per day.

The company completed and placed into service several major expansion projects. These included the Onion Lake Lateral project connecting to the Cold Lake Gathering System, the Spruce Lake North Lateral project connecting to the Saskatchewan Gathering System, and tank connectivity projects in the Hardisty terminal. These investments will bring in stable revenues supported by long-term take-or-pay contracts.

HMLP implemented engineering transformation and facility integrity management programmes for ongoing enhancement of the safety, reliability, and integrity of its assets. The improvements also enable HMLP to improve operating efficiencies, facilitate future growth, and minimise environmental impact. The company made significant progress in implementing industry best practices in the critical areas of asset integrity and control room management, which will further contribute to the safe operations of the company's systems.

NETHERLANDS

Dutch Enviro Energy Holdings B.V.

Dutch Enviro Energy Holdings B.V., which owns AVR-Afvalverwerking B.V. (AVR), is an energy-from-waste producer in Rotterdam and Duiven. It generates electricity, heat, and steam from the combustion of residual waste. Electricity is supplied to the national grid, and steam is used for domestic and industrial heating. AVR has around 20% market share of total residual waste incinerated.

Dutch Enviro Energy Holdings B.V.

Power Assets Interest: **27%**	Joined Since: **August 2013**
Waste-to-Energy Units: **138 MW**	Biomass-Fired Units: **30 MW**
Energy-From-Waste: **1,652 kT/yr**	Paper Residue Incineration: **142 kT/yr**
Liquid Waste Treatment: **198 kT/yr**	Biomass Energy: **116 kT/yr**

AVR processed a total of 2,490 kT of waste and generated 7,759 TJ of energy in 2022. With an ethos of 'nothing goes to waste,' the company recovered secondary resources as much as possible, recycling 25 kT of plastic during the year. 43 kT of carbon dioxide was recovered from flue gasses and supplied to greenhouses to support horticulture.

A new back-pressure steam turbine came into operation at the beginning of the year and enabled AVR to expand heat supply to Rotterdam's Eneco and Vattenfall districts. At maximum power, this turbine can meet the annual consumption of 60,000 households. It provides AVR with the scalable capacity needed to support the anticipated growth of district heating and steam demand while minimising cooling waste.

The company successfully concluded a cooperation agreement with various industrial companies in Rotterdam Port to investigate expanding its supply of sustainable process steam further, with the purpose of steady revenue increase from 2025 and beyond. In response to increased demand, it received a grant for a second CO_2 capture installation in Duiven with a capacity of 60 kT per year. The new installation will supply liquid CO_2 to the nearby Dutch greenhouse horticulture sector.

AVR was granted government subsidies to develop a carbon capture, utilisation and permanent storage facility at Rozenburg and Duiven. This large-scale system will reduce emissions of more than 500 kT CO_2 per year from 2027.

An AVR engineer discusses the company's energy-from-waste innovations during a customer interaction.

NEW ZEALAND

Wellington Electricity Lines

Wellington Electricity Lines Limited (WELL) serves over 173,000 domestic, commercial, and industrial customers in Wellington city in New Zealand. Its customers include the New Zealand Parliament, Wellington Airport, and the Wellington hospital.

Wellington Electricity Lines

Power Assets Interest: **50%**	Joined Since: **July 2008**
Network Length: **4,800 km**	No. of Customers: **173,000**

WELL sold 2,279 GWh of electricity (2021: 2,240 GWh) and maintained a network of approximately 4,800 km. Severe weather events affected the country in 2022, damaging the network and negatively impacting reliability. Ongoing proactive network maintenance and upgrade works to enhance resilience to withstand severe storms continued during the year. Most notably, this involved upgrades to the Frederick Street zone substation, which supplies the Wellington central business district and several of the city's suburban areas. A new protection system and two new 33-kV cables were installed on schedule.

The New Zealand government has finalised its Emission Reductions Plan to become carbon neutral by 2050. The plan includes the electrification of light transport and transitioning some coal and gas consumption to renewable electricity. WELL continues to develop the long term investment requirements to deliver the decarbonisation plan. WELL expects electrification for decarbonisation will result in a 100% increase in peak electricity demand by 2050. The model also highlights the need for an increase in regulatory funding for new network capacity and changes to the regulatory framework to provide for the step change in investment. The regulator is reviewing the methodology used to set allowances for network investment levels. The review will be completed by December 2023, in time for the next regulatory reset in 2025.

In 2022, the number of Electric Vehicles (EVs) in Wellington increased by 75% year on year, increasing electricity consumption. This trend is expected to continue, with government's plan for decarbonising all road transport by 2050. WELL developed a roadmap with the electricity industry, outlining the actions needed to accommodate EVs into the electricity system. WELL is also working with other industry working groups to trial and test new services that directly manage EV charging periods away from network peak congestion periods.

WELL workers repair high-voltage poles to upkeep network reliability.