



2023

环境、社会及管治 (ESG) 报告

Environmental, Social and Governance (ESG) Report

世纪互联集团股份有限公司

VNET Group, Inc.



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# 创始人兼联席董事长 致辞

2023年，随着“双碳战略”目标的深入推进，行业低碳化趋势愈发显著，“东数西算”政策的加速实施也推动着行业进入变革时代。在这一背景下，世纪互联不断奋发向前，积极创新，力争开创新一代数据中心产业新格局。

作为深耕数据中心行业近30年的科创型数字新基建龙头企业，世纪互联在发展过程中始终坚守初心。面对通用人工智能（AGI）时代爆发的高算力需求、以及未来数字化变革、能源变革发展趋势，我们原创性提出“算粒”+“电粒”双粒协同理论，推动构建以新能源为主体的新型电力系统，助力算力产业和电力产业的共同革新，为全球数字经济繁荣做出贡献。

自我们搭建“SHIELD”可持续发展体系以来，集团上下全力以赴，致力于提升世纪互联在环境、社会和管治方面的表现。我们通过推动绿色经济与数字经济的协同发展，为全球创造更可持续的未来。

## 推进零碳进程

我国生态文明建设已进入以降碳为重点战略方向的关键时期，世纪互联始终坚持以“4C”碳中和路径为中心的发展道路。在过去的一年，我们在建设“零碳”数据中心的道路上持续发力，一方面加强对光伏、储能、氢能技术的研发及应用，推动“源网荷储”一体化项目；另一方面在项目规划、建设与运营阶段探索更加节能节水的技术和绿色环保的材料。我们不断提高数据中心能源使用效率，促进循环经济。我们参考气候相关财务信息披露工作小组（TCFD）建议框架，加强气候相关信息披露水平，积极应对气候变化产生的风险和机遇，降低对财务及业务活动稳定性的潜在风险，构建集团气候竞争力。

## 算力驱动发展

世纪互联将“让绿色直流从数据中心走向千家万户”作为第二个25年创业的使命和奋斗目标，在坚守IDC机柜零售业务+IDC大定制批发业务的“双引擎”战略的同时，积极拥抱算力基础设施创新，促进超互联新算力的高质量发展。我们始终将客户利益放在首位，提供稳定可靠的数据中心基础设施，保障系统运行稳定性，实施严格的信息安全及

# Message from the Founder and Co-chairperson

In 2023, as the "Dual Carbon Strategy" goals make further progress, the industry's shift towards low-carbon practices is becoming increasingly prominent. The accelerated implementation of the "Eastern Data, Western Computing" strategy is also driving the industry into an era of change. In this context, VNET is continuing to forge ahead with innovation, striving to pioneer a new landscape for the new generation of the data center industry.

VNET, as a leading provider of innovative digital new infrastructure engaged in the data center industry for nearly 30 years, has adhered to its original mission throughout its whole development journey. In response to the ever-growing requirements for high computing power in the era of Artificial General Intelligence (AGI) and the development trend towards digitization as well as the energy revolution, we originally proposed the collaborative theory of "Computinglet" + "Powerlet". Based on this theory, we aim to foster the establishment of a novel energy-based power system, fostering collaborative reform within both the computing power industries and electric power industries. Through this endeavor, we seek to enhance the resilience of the global digital economy.

Since the "SHIELD" sustainability system was created, the Group has been striving to enhance VNET's environmental, social and governance performance. We are endeavoring to create a more sustainable future for the world by advancing the coordinated development of the green economy and digital economy.

## Advancing Towards the Zero-Carbon Goal

China's ecological civilization has entered a critical period with reducing carbon emissions as the key strategic goal. VNET's development consistently adheres to the "4C" pathway which is trending towards carbon neutrality. Over the past year, we have persistently pursued our goal of constructing "zero-carbon" data centers. Firstly, we have enhanced the R&D and application of photovoltaic, energy storage, and hydrogen energy technologies. Secondly, we have facilitated the integration of "source-grid-load-storage". In addition, we have explored technologies and green materials with higher energy and water conservation efficiencies throughout the project planning, construction and operation phases. We continuously improve the energy efficiency of our data centers and promote the concept of a circular economy. Based on the recommendation framework of the Task Force on Climate-Related Financial Disclosure (TCFD), we have enhanced our climate-related information disclosure level, actively responded to risks and opportunities arising from climate change, and reduced potential risks to the stability of financial and business activities in order to develop the Group's climate competitiveness.

## Driving Development with Computing Power

VNET regards "bring green direct-current electricity from data centers to millions of households" as its entrepreneurial mission and goal for the next 25 years. We are actively embracing innovation in computing power infrastructure and promoting the high-quality development of hyper-connected new computing power. Meanwhile, we are executing a "dual-core" strategy, which encompasses IDC cabinet retail services and IDC wholesale businesses. We always prioritize our customers' interests, provide stable and reliable data center

数据隐私保护措施。同时，我们将继续聚焦高质量业务的增长，精进数据中心服务能力，积极展开产品创新，推出云平台、全域托管云服务等切实满足客户需求的新解决方案，赋能更多行业客户的数字化转型。我们凭借高算力资源的建设部署能力和专业的配套服务，紧握AI驱动的算力需求机遇，服务更多新兴行业客户，推动集团业务长期、可持续增长。

## 携手共创价值

世纪互联高度重视人才的培养和发展，持续加强人才发展体系建设，全力打造一个多元、平等和包容的工作环境。我们坚决保障员工、供应商及第三方合作伙伴的人权权益，不断加强职业健康与安全的管理和投入。我们加强与行业上下游伙伴合作，不断优化供应商管理制度，共同推进可持续供应链发展。同时，我们积极履行企业公民的社会责任，在生态保护、儿童公益等领域持续投入，为建设美好社会贡献一份力量。

我们坚定不移地推进可持续发展目标，不断提升自身可持续发展水平。本年度，我们获得了国际资本市场ESG评级机构的高度认可，在可持续发展领域的影响力不断扩大，国际竞争力不断提升。

放眼当下，在AIGC大模型、Web3.0、元宇宙等新技术新模式的驱动下，算力已成为智能时代的核心竞争力。我们将继续布局新型算力基础设施，同时沿着“双碳”目标道路继续奋进，积极推动零碳数据中心建设，构建绿色算力生态。我们也将与全社会携手，共同迈向绿色、低碳、高质量发展的数字化未来，成为互联网基础设施领域更受尊敬的中国企业。

infrastructure, guarantee the stability of system operations, and implement strict protective measures for information security and data privacy. Meanwhile, we will continue to focus on high-quality business growth, improve the service ability of data centers, actively innovate products, and launch new solutions that effectively meet customer needs, such as cloud platforms and fully managed clouds. By doing so, we aim to empower customers' digital transformations across more industries. Leveraging our excellent ability to develop and deploy high computing power resources as well as our professional supporting services, we will seize the opportunity presented by AI-driven computing power to serve more customers in emerging industries, and drive the Group's long-term and sustainable business growth.

## Creating Value Together

VNET stresses talent cultivation and development, and continues to enhance the talent development system, striving to create a diversified, equal and inclusive workplace. We are determined to protect the rights of employees, suppliers, and third-party partners, and continue to enhance the management of and investment in occupational health and safety. We are enhancing cooperation with upstream and downstream partners, and optimizing the supplier management system to promote the development of sustainable supply chains together. In addition, we are actively fulfilling our social responsibilities. We continue to invest in ecological protection and public welfare events for children, thus contributing to the creation of a healthier society.

We are firmly advancing towards sustainable development goals and continuously improving our sustainability. This year, we have been highly recognized by ESG rating agencies of the international capital markets. Our influence in the field of sustainability has continuously expanded and our international competitiveness improved.

Currently, driven by new technologies and new models such as the AIGC big model, Web 3.0, and the metaverse, computing power has become a core competitiveness in the age of intelligence. We will therefore continue to deploy new computing power infrastructure, and at the same time, continue forging ahead on our path to achieving "Carbon Peaking and Carbon Neutrality" goal, namely building zero-carbon data centers and establishing a green computing power ecology. We will also join hands with the entire society to move towards a green, low-carbon, high-quality development of the digital future, and become a more respected Chinese enterprise in the field of Internet infrastructure.

世纪互联集团创始人兼联席董事长  
Founder and Co-chairperson of VNET Group, Inc.

陈升  
Mr. Josh Sheng Chen





# 关于世纪互联

## 企业概况

世纪互联集团股份有限公司（以下简称“世纪互联”、“集团”、“本集团”或“我们”）成立于 1996 年。2011 年，世纪互联于美国纳斯达克交易所上市，成为中国第一家美股互联网数据中心（IDC）上市公司。世纪互联深耕数据中心行业 28 年，是全球具有重要影响力的网络空间基础设施服务提供商之一，也是科技型数字新基建龙头企业。

世纪互联致力于为超大型客户提供业界领先的数据中心定制一站式解决方案，打造具有核心定制优势、超大规模运营能力、高附加值的基础设施运营平台。我们在京津冀、长三角、粤港澳等区域构建了规模化的数据中心产业集群，形成了稳固、庞大、全连接的数字化核心底座，不仅满足企业在一线城市的业务布局，更可提供一线城市向边缘城市数据的平滑迁移，为客户不断增长的业务定制最佳的数据中心解决方案。截至报告期末，集团在全国 30 多个城市运营超过 50 座数据中心，拥有 93,597 个机柜，端口容量达 4T 以上，高速云专线超 1T，成为客户数字化转型的新引擎。与此同时，我们正在推动新一批规模化、标准化、绿色化的高能力数据中心的供给，加速满足国内及海外企业用户快速扩张的市场需求。

# 30+

全国运营城市  
Operation cities nationwide

# 50+

运营数据中心  
Operated data centers

# 93,597

拥有机柜  
Cabinets

# 4T+

端口容量  
Port capacity

# About VNET

## Group Profile

VNET Group, Inc. (hereinafter referred to as "VNET", "the Group", "we", "us" or "our") was founded in 1996. In 2011, VNET was listed on the NASDAQ exchange, becoming China's first Internet data center (IDC) provider listed in the United States. After 28 years of development in the data center industry, VNET has become one of the world's most influential cyberspace infrastructure service providers and a leading provider of innovative digital new infrastructure.

VNET is committed to providing industry-leading tailored one-stop data center solutions for ultra-large clients and building an infrastructure operation platform with a core wholesale advantage, hyper-scale operation capacity, and high value-added nature. We have built large-scale data center clusters in the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Guangdong-Hong Kong-Macao Greater Bay Area. These clusters have formed a solid, vast, and fully connected digital core foundation, which not only satisfies the business layout of enterprises in first-tier cities, but also provides a smooth migration of data from first-tier cities to peripheral cities. This allows us to provide optimal and tailored data center solutions to facilitate customers' business growth. By the end of the reporting period, the Group operated over 50 data centers in over 30 cities throughout China, with 93,597 cabinets, more than 4T of port capacity, and over 1T of high-speed cloud connect. This makes us stand out as a new engine for customers' digital transformations. Meanwhile, VNET is catering to a new collection of scaled-up, standardized, eco-friendly, and high-capacity data centers in our effort to satisfy the demands of enterprises' rapid market expansion in China and overseas.

依托雄厚的资源和资本实力、强大的科技创新能力、高效的交付能力、卓越的运营能力，世纪互联已成为互联网头部企业定制化数据中心的优质合作伙伴，为企业打造了业务发展的稳固基石。以数据中心为核心，结合在数据中心建设与运营、多云服务、一站式行业解决方案等方面的优势，世纪互联为不同规模和发展阶段的企业提供更利于企业长远发展的互联网基础设施服务。同时，世纪互联蓝云在中国大陆境内运营国际水准的 Microsoft Azure，Microsoft 365，Microsoft Dynamics 365 和 Microsoft Power Platform 等云服务以及相关云应用解决方案。世纪互联蓝云以“让云计算更聪明，让云服务更高效”为使命，积极致力于推动中国云计算生态系统的成熟与繁荣，并率先为中国用户引入了国际领先、成熟的云应用，助力海内外云服务商落地中国，同时推动中国云计算产业向应用层面深入发展，加速合作、多赢的云生态体系的发展和完善。

世纪互联紧密围绕“新质生产力”国家战略，依托市场规模庞大的数字经济新业态，将绿色能源与低碳技术的探索与智慧、高效、绿色的发展理念紧密相连，为实现可持续发展的目标贡献智慧和力量。

Based on our strong resources and capital strength, powerful technological innovation capabilities, efficient delivery capabilities, and outstanding operational capabilities, VNET has become an ideal partner for tailored data centers for leading Internet companies, laying a solid foundation for our business development. Focusing on data centers and considering advantages in data center construction and operation, multi-cloud services, and one-stop industry solutions, VNET is providing enterprises of different sizes and stages with Internet infrastructure services that are beneficial for enterprises' long-term development. Meanwhile, 21Vianet Blue Cloud operates Microsoft Azure, Microsoft 365, Microsoft Dynamics 365, and Microsoft Power Platform in Mainland of China, and delivers world-class cloud services and relevant cloud service solutions. Upholding our mission of "making cloud computing smarter and cloud services more efficient", 21Vianet Blue Cloud is actively committed to promoting the maturity and prosperity of China's cloud computing ecosystem. We have spearheaded the introduction of internationally advanced and mature cloud applications for Chinese customers, and are helping cloud service providers land in China. By doing so, we are driving China's cloud computing industry towards greater application-level development, and expediting the establishment and enhancement of a collaborative and mutually beneficial cloud ecosystem.

Centered on the national strategy of "new quality productive forces", leveraging the vast market scale of the digital economy's new formats, VNET is closely linking the exploration of green energy and low-carbon technologies to the vision of intelligent, high-efficient and green development, thus contributing towards sustainable development goals.



# 2023 年大事记 Highlights in 2023

## 1 January

发起的“中关村超互联新基建产业创新联盟”正式获批成立  
The "Zhongguancun Hyper-Connected New Infrastructure Industrial Innovation Alliance" was officially approved for establishment

子品牌第一线荣获“2022 年度 ICT 产业影响力企业”与“2022 年度最佳网络服务产品”双项殊荣  
The sub-brand DYXnet obtained the "2022 ICT Industry Influential Enterprise" and "2022 Best Network Service Products" awards

## 3 March

入选由中国电子信息行业联合会发布的“2022 年度软件和信息技术服务竞争力百强企业”百强榜  
Selected as one of the "2022 China's Top 100 Software and IT Service Enterprises in Comprehensive Competitiveness" by the China Electronic Information Industry Federation

## 5 May

世纪互联廊坊华海三河铭泰数据中心入选“2022 年度国家绿色数据中心”  
VNET's Langfang Huahai Sanhe Mingtai Data Center was selected as a "2022 National Green Data Center"

## 2 February

北京东部数据中心在第十七届中国 IDC 产业年度大典上荣获“2022 年度中国 IDC 产业绿色算力数据中心”奖项  
The Beijing Eastern Data Center obtained the "2022 China IDC Industry Green Computing Power Data Center" award at the 17<sup>th</sup> China IDC Industry Annual Ceremony

## 4 April

承办的首届超互联新算力产业暨第三届中国 IDC 行业 DISCOVERY 大会成功举办  
Held the First Conference of Hyper-Connected New Computing Power Industry and the 3<sup>rd</sup> DISCOVERY Conference for China's IDC Industry successfully

华北区某数据中心顺利完成验收，投入运行阶段，该项目通过国家 CQC A 级机房认证、金融行业数据中心基础设施等级认证 (JR. I 级)，以及金融业信息系统机房动力系统认证 (JR/T0131)  
A data center in North China was completed and put into operation. The project passed the CQC Class A computer room certification, the data center infrastructure level certification for the financial industry (JR. I level), and specification for power system of financial information system room (JR/T0131)

## 6 June

携手鼎好 DH3 打造“鼎好超互联 AGI 枢纽”  
Co-Built the "AGI Hub" with DINGHAO DH3



# 7 July

入选“北京市通用人工智能产业创新伙伴计划（第二批）”算力伙伴  
Selected as the Computing Power Partner of the "Beijing General Artificial Intelligence Industry Innovation Partner Program (Second Batch)"

入选中国信通院“2023年中国第三方数据中心服务商影响力 TOP10”榜单  
Selected as one of the "2023 China's Top 10 Influential Third-Party Data Center Service Providers" by China Academy of Information and Communications Technology

在“2023 第十届可信云大会”上，入选国内首个算力服务研究组织——算力服务方阵，并获评“2023 年度专有云优秀案例”

Selected as the first domestic computing service research organization—Computing Power Service Matrix, and rated as one of the "2023 Annual Outstanding Cases for Private Cloud" at the "2023 10<sup>th</sup> Trusted Cloud Summit"

加入虚拟电厂（苏州）合作生态，“算粒”+“电粒”双粒协同发展  
Joined the Virtual Power Plant (Suzhou) Cooperation Ecology, following the theory of "Computinglet" + "Powerlet" for coordinated development

参与由中国电子技术标准化研究院与由人民日报社主管的传播内容认知国家重点实验室联合牵头发起的“智越计划”，携手超 60 家产学研用单位，共同发展智能芯片产业生态

Participated in the "ZhiYue Plan" jointly led by the China Electronics Standardization Institute and the State Key Laboratory of Communication Content Cognition governed by the People's Daily to work with over 60 industrial, academic, research and application organizations to develop the intelligent chip industry ecosystem

# 8 August

获评第十八届中国 IDC 产业（长三角）年度大典“2023 长三角区域智能算力应用先锋奖”

Won the "2023 Pioneer Award for the Application of Intelligent Computing Power in the Yangtze River Delta Region" at the 18<sup>th</sup> China IDC Industry Annual Ceremony (Yangtze River Delta Region)

# 9 September

## September

在 2023 开放数据中心大会上，世纪互联廊坊华海三河铭泰数据中心基地的 4# 云数据中心和 6# 云数据中心分别获得“4A 级（设计类）DC-Tech 数据中心绿色等级认证”、“4A 级（运行类）DC-Tech 数据中心绿色等级认证”

At the 2023 Open Data Center Committee, the 4# Cloud Data Center and 6# Cloud Data Center at VNET's Langfang Huahai Sanhe Mingtai Data Center were rated "Class 4A (Design Category) DC-Tech Data Center Green Level Certification" and "Class 4A (Operation Category) DC-Tech Data Center Green Level Certification", respectively

# 11 November

联合中国电气装备集团绿能公司、清华大学能源互联网创新研究院举办“中国绿色直流数据中心百人会（筹）”（GDCC100），揭晓世纪互联第二个 25 年创业的使命和奋斗目标：让绿色直流从数据中心走向千家万户

Jointly held the "Green Direct-current Data Center (GDCC) 100" with China Electrical Equipment Group Green Energy Technology Co., Ltd., Energy Internet Research Institute Tsinghua University and released VNET's next 25-year entrepreneurial mission and goal: bring green direct-current electricity from data centers to millions of households

世纪互联太仓基地斩获 W.Media “数据中心客户交付团队大奖”  
VNET Taicang Site received the W.Media's "Data Center Client Delivery Team Award"

获得山高控股集团有限公司 2.99 亿美元战略投资  
Received US\$299 million strategic investment from Shandong Hi-Speed Holdings Group Limited

# 12 December

成为国家能源互联网产业及技术创新联盟常务理事单位  
Became the Executive Director of the China Energy Internet Alliance

在第十八届中国 IDC 产业年度大典上荣获“2023 年度中国 IDC 产业创新发展奖”“2023 年度中国 IDC 产业数据中心智能运营奖”

Won the "2023 China IDC Industry Innovation and Development Award" and "2023 China IDC Industry Data Center Intelligent Operation Award" at the 18<sup>th</sup> China IDC Industry Annual Ceremony

深度参与的《算力 - 电力 - 热力协同：数据中心综合能源技术发展白皮书》《中国算力产业高质量发展白皮书（2023 年）》正式发布

*The Collaboration of Computing Power, Electric Power and Heat: White Paper on Comprehensive Energy Technology Development of Data Centers and the White Paper on High-quality Development of China's Computing Power Industry (2023)*, in which VNET was deeply engaged, were officially released

参与实施建设的某客户基于缺水无水地区的数据中心节水节电绿色解决方案，荣获“2023 年度中国 IDC 产业绿色解决方案奖”

Won the "2023 China IDC Industry Green Solution Award" by virtue of the water and electricity conservation solution for data centers in water-deficient and waterless regions that was offered to a customer

在第七届中国卓越 IR 评选中荣获“最佳 ESG 新秀奖”及“最佳投资者关系项目”

Won the "Best ESG Rising Star Award" and "Best Investor Relations Project Award" by the 7<sup>th</sup> RoadShow China



# 国际认可<sup>1</sup> International Recognition<sup>1</sup>

2023 年度，世纪互联凭借在 ESG 管理、气候变化应对等方面的杰出表现，屡获国际评级机构及资本市场的认可，国际竞争力不断提升。

In 2023, with the outstanding performance in ESG management, responding to climate change and other aspects, VNET was repeatedly recognized by various international rating agencies and capital markets, demonstrating our continuously enhanced international competitiveness.



在摩根士丹利资本国际公司 (MSCI) ESG 评级中获评 A 级，连续两年荣获中国互联网服务和基础设施行业最高评级。

We received an ESG rating of A from Morgan Stanley Capital International (MSCI), ranking the highest ranking awarded in China's Internet Service and Infrastructure industry for the second consecutive year.



在 2023 标普全球企业可持续发展评估 (S&P Global CSA) 中得分为 53 分，位列全球信息技术服务行业前 11%，并连续两年荣获该行业中国企业最高得分。

We scored 53 in the 2023 S&P Global Corporate Sustainability Assessment (S&P Global CSA), ranking the highest among China's IT Services industry for the second consecutive year and in the top 11% in the industry globally.

荣获标普全球《可持续发展年鉴 (中国版) 2023》入选企业称号。

We recognized as the member of the *Sustainability Yearbook (China) 2023* by S&P Global.



在全球环境信息研究中心 (CDP) 2023 气候变化问卷中获评 B 级，超过了 94% 的参与问卷回复的中国企业。

We received a B score in the 2023 Climate Change Questionnaire of the Carbon Disclosure Project (CDP), surpassing 94% of participants from China.

注：1. 评级 / 评分及相关信息来自截至 2024 年 4 月可获取的公开信息。

Notes: Ratings/scores and related information were derived from publicly available information as of April, 2024.

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## ESG 策略

### ESG 管治架构

集团建立了董事会负责、管理层领导、跨部门配合及上下联动的 ESG 管治架构，并将 ESG 管理理念融入到集团重要决策过程中，推动企业高质量发展。董事会作为最高决策机构对集团 ESG 工作进行全面的指导与监督，董事会和管理层负责确保集团的 ESG 策略以及相关活动（包括气候相关议题）切合集团发展需求并取得成效。

## ESG Strategy

### ESG Governance Structure

The Group has established an ESG governance structure with the Board of Directors taking the responsibility, management taking the lead, enhancing cross-functional cooperation and cross-level collaboration. The Group has incorporated ESG management philosophy into Group's major decisions to promote high-quality development of the enterprise. The Board of Directors, as the highest decision-making body, provides overall guidance and supervision of the Group's ESG efforts. The Board of Directors and management are responsible for ensuring that the Group's ESG strategy and related activities, including climate-related issues, are both relevant and effective.



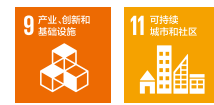


# “SHIELD” 可持续发展体系 "SHIELD" Sustainability System

作为联合国全球契约组织 (UNGC) 成员企业, 世纪互联承诺支持其十项原则和联合国可持续发展目标 (SDGs) 的实现。本年度, 我们基于打造的“SHIELD”可持续发展体系, 在社区、人才、创新、环境、治理、发展六大行动领域中积极开展可持续行动。

As a participant of United Nations Global Compact (UNGC), we pledge to support its Ten Principles and the achievement of the United Nations Sustainable Development Goals (SDGs). In 2023, based on the "SHIELD" sustainability system we developed, we actively carried out sustainable actions in six action areas, namely Social, Human, Innovation, Environment, Leadership and Development.

开展科技创新, 助力数字中国建设, 实现高质量发展; 提供可靠产品与服务, 强化知识产权意识。



Carry out scientific and technological innovation to help build a digital China and achieve high-quality development. Provide reliable products and services and strengthen our awareness of intellectual property.



保障员工权益, 打造多元包容职场, 携手员工成长。



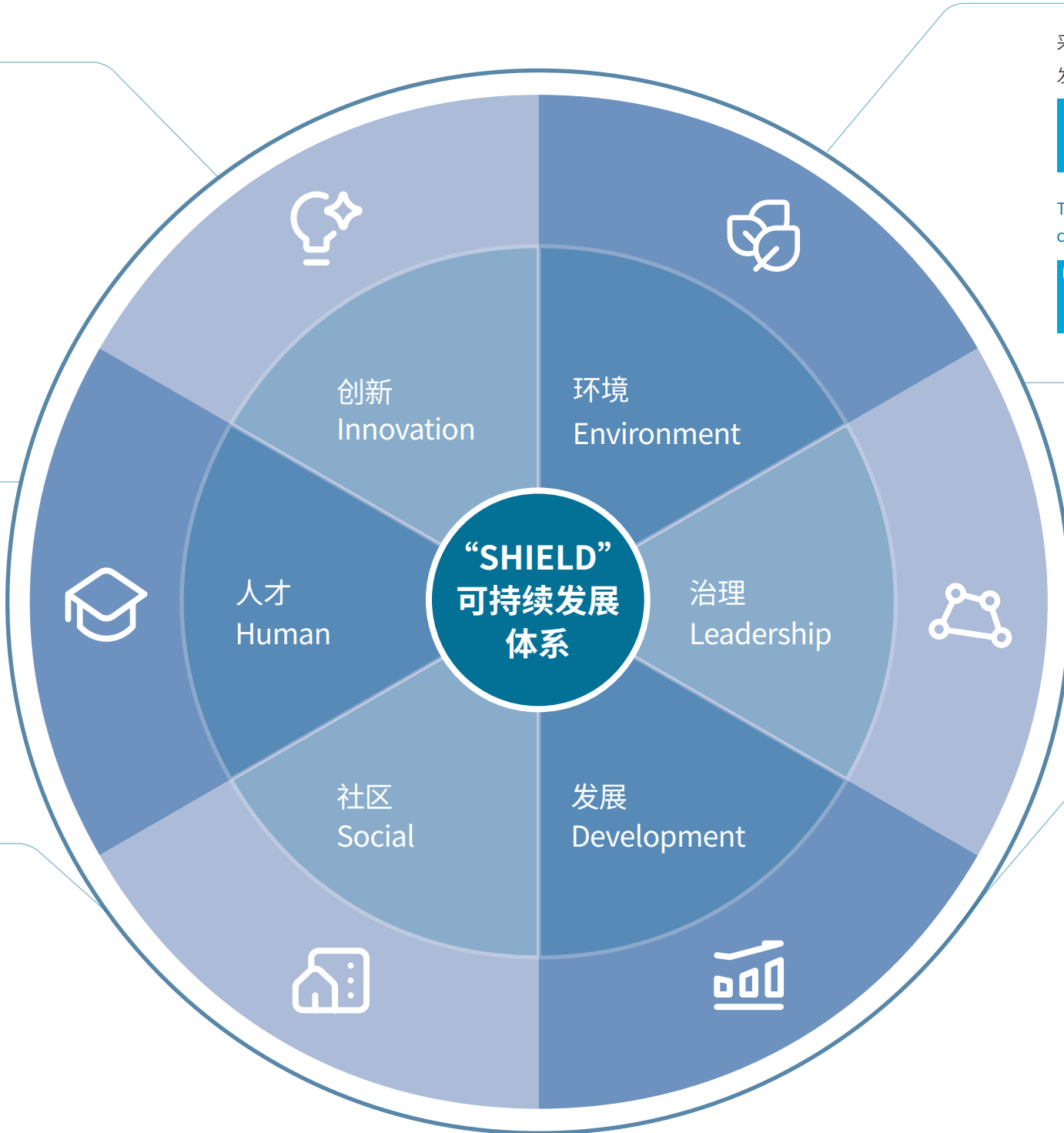
Protect employees' rights and interests, create a diversified and inclusive workplace, and grow together with employees.



关怀弱势群体, 参与社区公益, 共享发展成果, 成为负责任的企业公民。



Care for disadvantaged groups, participate in community public welfare, share the fruits of development, and become a responsible corporate citizen.



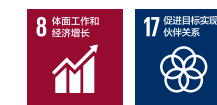
采取行动构建全生命周期绿色数据中心解决方案, 助推循环经济发展。



Take measures to develop green data center solutions for the full life cycle, promote circular economy.



建设高效、透明、健全的治理体系, 强化风险防控, 构建诚信的商业环境。



Build an efficient, transparent and sound governance system, strengthen risk prevention and control, and foster an honest business environment.



保障客户信息及数据安全, 完善信息安全管理; 打造绿色、可持续的供应链。



Ensure customer's information and data security, improve information security management system. Build green and sustainable supply chains.





## 2023 年度关键绩效

## 2023 Key Performance


**创新  
Innovation**
**优质产品及服务** Quality products and services

- 通过业务连续性管理体系 (ISO 22301) 认证  
Passed Business Continuity Management Systems (ISO 22301) certification
- 由世纪互联运营的 Microsoft Teams 正式商用  
Microsoft Teams operated by 21Vianet was officially released
- 由世纪互联运营的 Microsoft Azure 新商务模式正式商用  
New Commerce Experience is available on Microsoft Azure operated by 21Vianet
- 大型 IDC 运营中断事件为 **0**  
Major IDC operational disruptions were **0**
- 大型 IDC 网络中断事件为 **0**  
Major IDC network outages were **0**
- 全国客户满意度为 **99.81%**  
The national customer satisfaction was **99.81%**

**知识产权保护** Intellectual property protection

- 新增获得专利 **35** 项、软件著作权 **40** 项、商标 **50** 项  
Obtained **35** patents, **40** software copyrights, and **50** trademarks in 2023
- 侵犯他方知识产权事件数量为 **0**  
The number of incidents infringing on the intellectual property of the other party is **0**


**环境  
Environment**
**可再生能源** Renewable energy

- 北京亦庄博兴数据中心及广东佛山智慧城市数据中心的光伏发电项目合计发电约 **27.25** 万千瓦时  
The PV power generation projects of Beijing Yizhuang Boxing Data Center and Guangdong Foshan Smart City Data Center generate a combined total of approximately **272,500** kWh of power
- 参与多地区绿电交易，本年度购买绿电约 **5,690** 万千瓦时  
Participate in multi-region green power trading and purchased about **56.90** million kWh of green power during this year

**碳排放管理** Carbon emission management

- 稳定运行的数据中心全年 PUE 平均值为 **1.29**  
The average annual power usage effectiveness (PUE) of data centers with stabilized operations in 2023 was **1.29**
- 累计获得绿色数据中心认证 **10** 个  
**10** green data center certifications have been obtained
- 太仓数据中心推出业内首个第三代全新架构的风、液组合高强冷却解决方案，可大幅度降低 PUE 至同地域行业领先水平  
Taicang Data Center launched industry's first third-generation new architecture wind-liquid combined high-intensity cooling solution, which significantly reduces PUE to industry-leading levels in the same geographic region
- 乌兰察布数据中心研发创新型空气源热技术，该技术单套机组全年可节省电力约 **9** 万千瓦时，减少二氧化碳排放量约 **80** 吨  
Ulanqab data center developed innovative air-source heat technology, which can save about **90,000** kWh of electricity and reduce carbon dioxide (CO<sub>2</sub>) emissions by about **80** tonnes for a single set of units in a year

**气候变化应对** Responding to climate change

- 持续开展温室气体排放量盘查及核查  
Ongoing inventory and verification of greenhouse gas (GHG) emissions
- 成为气候相关财务信息披露组 (TCFD) 支持机构  
Become a supporter of the Task Force on Climate-related Financial Disclosures (TCFD)





## 治理 Leadership

### 公司治理 Corporate governance

- 截至报告发布之时，董事会独立董事占比 **71%**  
Independent directors account for **71%** in the Board as of the publication of the report

### 商业道德 Business ethics

- 通过反贿赂管理体系 (ISO 37001) 认证  
Passed Anti-bribery Management Systems (ISO 37001) certification
- 董事及员工反贪污培训覆盖率 **100%**  
Achieved **100%** coverage of anti-corruption training for directors and employees
- 新员工反贪污培训考试通过率 **100%**  
Achieved **100%** pass rate in anti-corruption training examination for new employees
- 针对集团或集团员工提出并已审结的贪污诉讼案件数量为 **0**  
Number of concluded legal cases regarding corrupt practices brought against the Group or its employees was **0**



## 发展 Development

### 信息安全与数据隐私 Information security and data privacy

- 通过信息技术服务管理体系 (ISO/IEC 20000) 认证  
Passed Information Technology Service Management Systems (ISO/IEC 20000) certification
- 通过信息安全管理体系 (ISO/IEC 27001) 认证  
Passed Information Security Management Systems (ISO/IEC 27001) certification
- 世纪互联蓝云累计获得可信云认证 **11** 项  
21Vianet Blue Cloud had obtained a total of **11** Trusted Cloud Services (TCS) Evaluations
- 世纪互联蓝云连续多年通过系统及组织控制 (SOC) 审计  
21Vianet Blue Cloud achieved the System and Organization Controls (SOC) report for consecutive years
- 重大信息安全事件数量为 **0**  
Number of major information security incidents was **0**
- 商业秘密泄露事件为 **0**  
Number of trade secret leakage incidents was **0**
- 员工信息安全受训比例达 **100%**  
Achieved **100%** coverage of information security training for employees

### 可持续供应链 Sustainable supply chains

- 在库供应商总数为 **2,854** 家  
The total number of recorded suppliers reached **2,854**
- 供应商签署《关于反商业贿赂行为的承诺书》比率为 **100%**  
**100%** of suppliers signed the Anti-bribery Commitment Letter



## 社区 Social

### 社区参与及贡献 Community engagement and contribution

- 在义务植树活动中员工共投入近 **400** 小时  
Employees invested nearly **400** hours in voluntary tree planting activity



## 人才 Human

### 员工吸引与保留 Employee attraction and retention

- 员工总人数达 **3,038** 人  
The total number of employees reached **3,038**
- 新进员工 **426** 人  
The number of new hires reached **426**
- 产假或陪产假结束后的员工返岗率达 **100%**  
Return to work rate of employees that took maternity or paternity leave reached **100%**

### 多元及平等机会 Diversity and equal opportunities

- 管理岗位女性员工占比 **31%**  
Percentage of female employees in management positions was **31%**
- 男女员工月薪酬平均数比率为 **1.02:1**  
Ratio of male to female employees' average monthly salary was **1.02:1**
- 男女员工月薪酬中位数比率为 **1:1.04**  
Ratio of male to female employees' median monthly salary was **1:1.04**

### 员工培训与发展 Employee training and development

- 员工人均受训时长 **29.36** 小时  
Average training hours per employee reached **29.36** hours
- 通过在线学习平台“互联 e 学”为员工提供 **545** 门课程  
Total number of VNET E-Learning platform courses reached **545**
- “荣耀运维人”系列培养项目累计吸引了近 **6,500** 人次参赛  
The Honor Operation and Maintenance (O&M) Expert Program series attracted about **6,500** participants

### 职业健康与安全 Occupational health and safety

- 通过职业健康与安全管理体系 (ISO 45001) 认证  
Passed the Occupational Health and Safety Management Systems (ISO 45001) certification
- 工程建设责任死亡率为 **0**  
The fatalities rate for engineering construction responsibilities was **0**
- 安全生产培训覆盖 **100%** 员工  
Achieved **100%** coverage of work safety training for employees



# 利益相关方参与 Stakeholder Engagement

## 利益相关方沟通 Stakeholder Communication

世纪互联高度重视与利益相关方的沟通，我们积极拓展多样化的沟通渠道，与各利益相关方保持常态化、多元化的交流，充分了解其意见和诉求并积极回应，以期不断优化我们的 ESG 策略、提升 ESG 绩效。

VNET attaches great importance to communication with stakeholders. We actively expand diversified communication channels, maintain regular and diversified exchanges with various stakeholders, fully identifies and actively respond to stakeholder's suggestions and needs to continuously optimize our ESG strategy and improve our ESG performance.

主要利益相关方 Major stakeholders	关注的 ESG 议题 Key ESG issues	主要沟通渠道 Major communication channels
 政府及 监管机构 Government and regulators	公司治理 Corporate governance 生态环境保护 Ecological conservation and environmental protection 气候变化应对 Responding to climate change 碳排放管理 Carbon emission management 废弃物管理 Waste management 水资源使用 Utilization of water resources 可再生能源 Renewable energy 信息安全与数据隐私 Information security and data privacy	政府咨询 Government consultation 信息披露 Information disclosure 专题汇报 Thematic reports 统计报表 Statistical statements 监督检查 Supervision and inspection
 股东及 其他投资者 Shareholders and other investors	公司治理 Corporate governance 商业道德 Business ethics 可再生能源 Renewable energy 碳排放管理 Carbon emission management 气候变化应对 Responding to climate change 水资源使用 Utilization of water resources	信息披露 Information disclosure 股东会议 General meetings of shareholders 路演活动 Roadshows 实地考察 On-site visits 电话邮件往来 Telephone and mail exchanges
 员工 Employees	多元化及平等机会 Diversity and equal opportunities 员工权益保护 Protection of employees' rights and interests 员工吸引与保留 Employee attraction and retention 职业健康与安全 Occupational health and safety 员工培训与发展 Employee training and development 信息安全与数据隐私 Information security and data privacy	工会委员会 Trade Union Committee 女职工委员会 Women Workers' Committee 员工培训 Employee training 员工座谈 Employee seminars 员工满意度调查 Employee satisfaction surveys 举报体系 Reporting system

主要利益相关方 Major stakeholders	关注的 ESG 议题 Key ESG issues	主要沟通渠道 Major communication channels
 客户 Customers	优质产品及服务 Quality products and services 信息安全与数据隐私 Information security and data privacy 商业道德 Business ethics 可再生能源 Renewable energy 碳排放管理 Carbon emissions management 多元化及平等机会 Diversity and equal opportunities	产品发布会 Product launches 客户服务热线 Customer service hotline 满意度调查 Satisfaction surveys 投诉系统 Complaint system 实地考察 On-site visits 信息披露 Information disclosure 电话邮件往来 Telephone and mail exchanges
 供应商及 其他合作伙伴 Suppliers and other partners	可持续供应链 Sustainable supply chains 商业道德 Business ethics 职业健康与安全 Occupational health and safety 知识产权保护 Intellectual property protection 信息安全与数据隐私 Information security and data privacy	行业峰会 Industrial summit 采购活动 Procurement activities 供应商培训 Supplier trainings
 媒体、非政府组 织及行业协会 Media, NGOs and industry associations	优质产品及服务 Quality products and services 信息安全与数据隐私 Information security and data privacy 生态环境保护 Ecological conservation and environmental protection 气候变化应对 Responding to climate change 水资源使用 Utilization of water resources 可再生能源 Renewable energy 可持续供应链 Sustainable supply chains	信息披露 Information disclosure 新闻发布会 Press conferences 行业峰会 Industrial summit 电话邮件往来 Telephone and mail exchanges
 公众与社区 Public and communities	社区参与及贡献 Community engagement and contribution 生态环境保护 Ecological conservation and environmental protection	问卷调查 Questionnaires 公益活动 Public welfare activities



## 重要性议题评估 Materiality Assessment

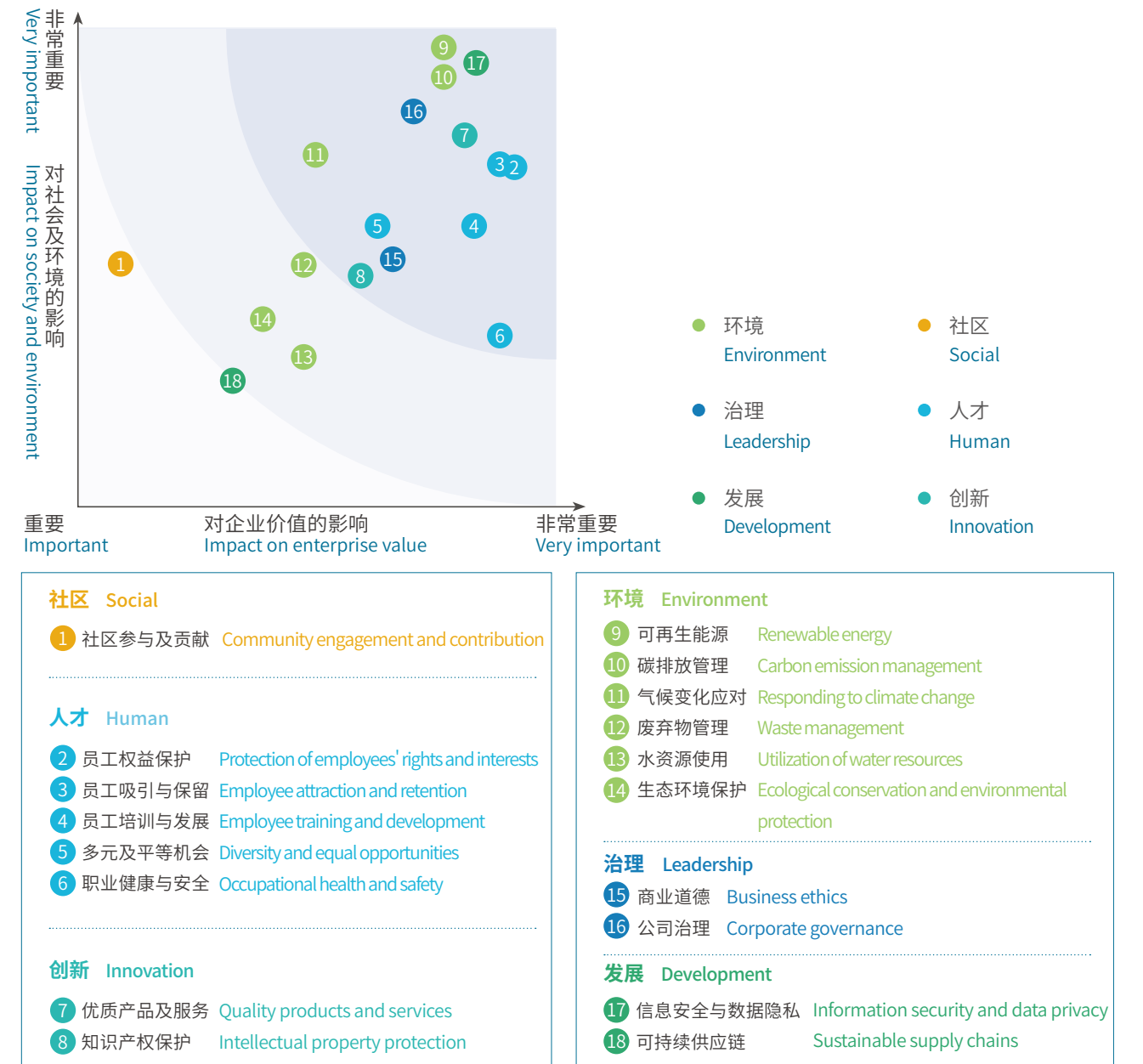
集团每年进行以利益相关方为导向的重要性议题评估，并将重要性评估结果纳入企业风险管理流程的考量范围。我们通过以下四个步骤，以确定与我们业务发展相关、对我们的利益相关方重要，并对社会、环境和经济层面产生重大影响的重要性议题。我们于本报告中对相关议题的行动与成效进行了回应。

The Group conducts a stakeholder-oriented materiality assessment of issues on an annual basis and incorporates the results into the enterprise risk management process. We go through a four-step process to identify material issues that are relevant to the development of our business, important to our stakeholders and impactful on the social, environmental and economic dimensions. We respond to the identified issues by outlining our actions and achievements in this report.



本年度，我们对世纪互联重要性议题清单进行更新迭代，并开展 ESG 议题重要性评估，最终归纳、更新了我们的重要性议题评估矩阵：

In 2023, we updated and iterated VNET's material issues list, conducted ESG issue materiality assessment, and finally summarized and updated our material issue assessment matrix:



领域 Area	重要性议题变更说明 Statement of changes in material issue
环境 Environment	世纪互联将气候变化纳入企业战略考量，积极推动应对气候变化工作进展，2023 年“11 气候变化应对”议题对企业价值和对社会及环境的重要性均有所提升。 VNET incorporates climate change into the corporate strategy and actively promotes the progress of work to address climate change, and the materiality of the issue of "11 Responding to Climate Change" in 2023 has increased in terms of corporate value, society and the environment.
治理 Leadership	世纪互联持续提升企业治理水平，优化治理体系，2023 年“16 公司治理”议题对企业价值的重要性提升。 VNET continues to improve its corporate governance and optimize its governance system, and the materiality of the issue of "16 Corporate Governance" to corporate value has increased in 2023.



# 坚守商业底线 责任治理

## Holding the Business Bottom Line Responsible Governance

世纪互联坚守商业底线，积极营造良好的内外部治理环境，促进集团合规稳健发展。

VNET adheres to the business bottom line, actively creates a sound internal and external governance environment, and promote the Group's compliant and robust development.

25 / 公司治理  
Corporate Governance

27 / 风险管理  
Risk Management

30 / 商业道德  
Business Ethics





良好的治理是企业高质量发展的基石，亦是对股东和其他利益相关方的权益保障。世纪互联严格遵守《中华人民共和国公司法》《美国证券交易法》等法律法规，持续优化治理体系，强化风险管理与内部控制，坚持诚信合规运营，以实现企业长远可持续发展。

VNET considers effective corporate governance as its development cornerstone, as well as a guarantee for the rights and interests of shareholders and other stakeholders. In strict accordance with the *Company Law of the People's Republic of China*, the *Securities Exchange Act of the United States* and other relevant laws and regulations, VNET consistently optimizes its governance structure, improves risk management and internal controls, and operates with integrity and compliance to maintain sustainable development in the long run.

## 公司治理

世纪互联的高效运营得益于健全的治理架构和明确的管理职责。我们建立了由股东大会，董事会及其下属专业委员会及管理层组成的治理架构。董事会为企业内部管理提供工作指导和建议，包括通过制定战略及监督实施、监察本集团的营运及财务表现、确保设立有效的内部控制及风险管理制。董事会专业委员会的职权范围已于本集团网站刊登<sup>1</sup>，并可按要求供股东查阅。

我们重视董事会独立性及多元化。董事会下属的审计委员会、提名及公司治理委员会、薪酬委员会均由非执行独立董事领导。董事会成员的甄选和任命考虑多个范畴，包括但不限于专业技能、行业经验及资历、教育及文化背景、性别、种族等，以确保可以从技能、经验、知识及观点等方面为企业带来多元视野和洞见。

## Corporate Governance

VNET's efficient operations benefit from a sound governance structure and clear management responsibilities. Our robust governance structure consists of the general meeting of shareholders, the Board of Directors and its subordinate committees and management. The Board of Directors provides consultation and suggestions on the management of various divisions, including formulating relevant strategies, supervising their implementation, and monitoring the operational and financial performance of the Group, ensuring soundness of internal control and risk management systems. Our Board committees' scope of responsibilities is published on the official website<sup>1</sup> of VNET and is available for shareholders upon request.

We value the Board independence and diversity. The Audit Committee, the Nominating and Corporate Governance Committee and the Compensation Committee of the Board of Directors are all led by non-executive independent directors. Various factors, including but not limited to expertise, industry experience and qualifications, educational and cultural background, gender, race, etc., are considered in the selection process and the appointment of Board members. This course of action ensures that a diverse range of skills, experience, knowledge and perspectives can be brought to the enterprise.

注：  
Notes: 1. <https://ir.vnet.com/corporate-governance/policies-committee-charters>

我们鼓励董事持续参与专业培训及课程，亦向董事提供包括法律及监管更新的相关文件供其参考及研究，以提升董事会成员的合规意识和履职能力。

截至报告发布之时，世纪互联董事会由7名董事构成，包括执行董事2名、独立董事5名，独立董事占比71%。

We encourage our directors to participate in appropriate professional training and courses, as well as providing them with legal and regulatory updates for reference and study, aiming to enhance the Board's compliance awareness and capacity to perform duties.

As of the release of the report, the Board of Directors consisted of seven members, including two executive directors and five independent directors. Independent directors account for 71% of the total.

职位 / 职务 Position/Title	姓名 Name	教育背景 Educational Background	专业能力 Expertise		
			行业经验 Industry experience	风险管理 Risk management	财务管理 Financial management
创始人兼联席董事长 Founder and Co-Chairperson	陈升 Mr. Josh Sheng Chen	电气工程学士 Bachelor of Electrical Engineering	√	√	√
联席董事长 Co-Chairperson	朱剑彪 <sup>1</sup> Mr. Jianbiao Zhu <sup>1</sup>	金融博士 Doctor of Finance	√	√	√
独立董事 Independent Director	刘二飞 Mr. Erhfei Liu	工商管理硕士 Master of Business Administration	√	√	√
独立董事 Independent Director	邵孝恒 Mr. Sean Shao	医疗管理学硕士 Master of Healthcare Administration	√	√	√
独立董事 Independent Director	上野嘉久 Mr. Yoshihisa Ueno	工商管理学士 Bachelor of Business Administration	√	√	√
独立董事 Independent Director	邵中和 Mr. Kenneth Chung-Hou Tai	工商管理硕士 Master of Business Administration	√	√	√
独立董事 Independent Director	叶长青 Mr. Changqing Ye	工商管理硕士 Master of Business Administration	√	√	√

注：  
Notes: 1. 朱剑彪先生自2024年1月起担任世纪互联联席董事长。  
Mr. Jianbiao Zhu has served as the Co-Chairperson of the Board of VNET since January 2024.



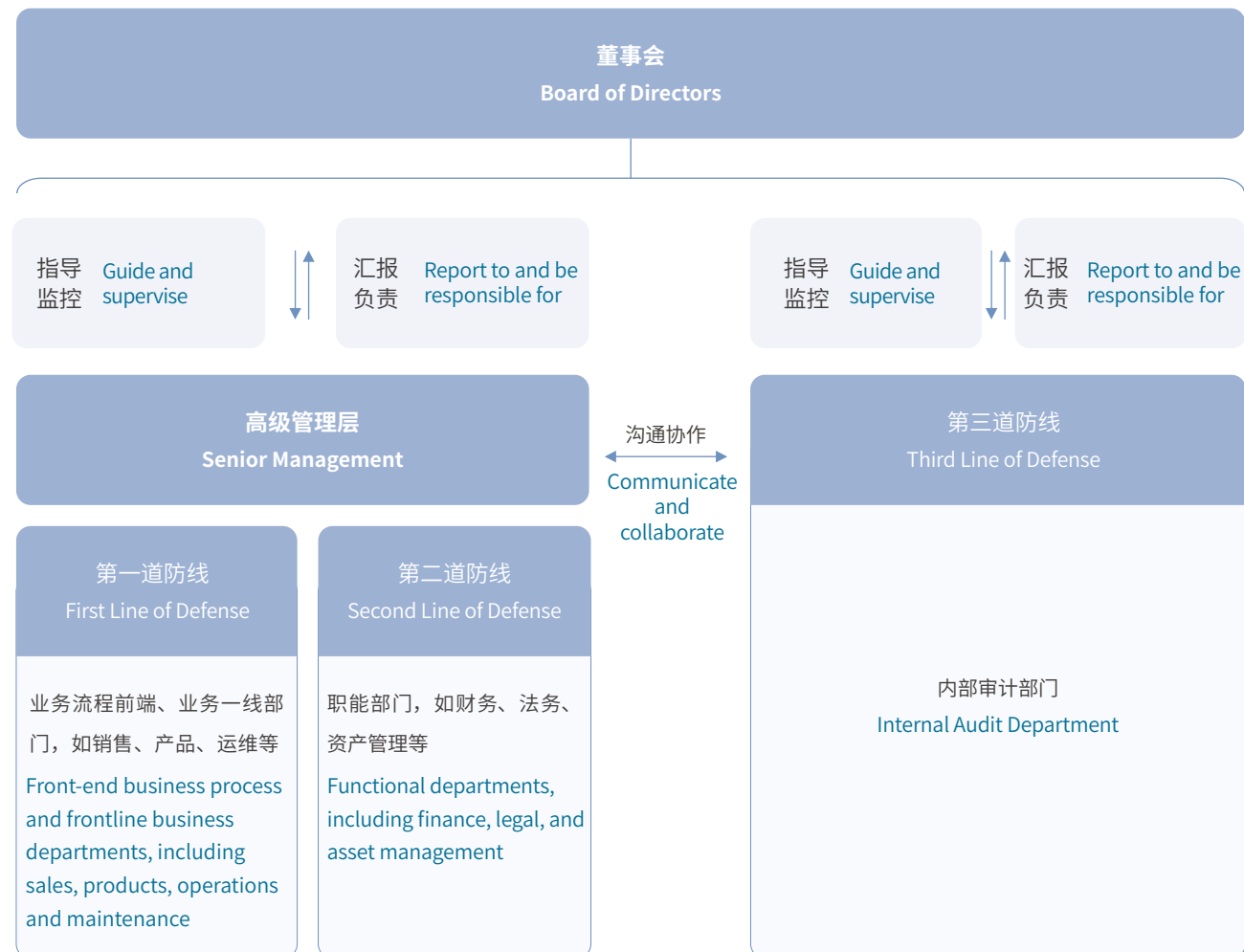
# 风险管理 Risk Management

## 风险管理体系

### Risk Management Systems

有效的风险管理和内部控制对集团的成功运作至关重要。我们基于反虚假财务报告委员会下属的发起人委员会（以下简称“COSO”）发布的《内部控制整合框架》（以下简称“框架”），结合集团业务特点建立风险管理及内部控制系统，对运营过程中的财务和非财务风险进行识别和预警，形成有效的风险防控机制，并明确董事会、管理层、内控团队及外部审计机构在风险防控体系中的角色与责任，保障风险管理体系健全有效。

Effective risk management and internal control are essential to the successful operation of the Group. Based on the *Internal Control-Integrated Framework* (hereinafter referred to as "Framework") issued by the Committee of Sponsoring Organizations of the Treadway Commission (hereinafter referred to as "COSO"), we develop risk management and internal control systems tailored to the characteristics of our business development. We identify and give early warnings to financial and non-financial risks in the operation process to form an effective risk prevention and control mechanism. We also clearly define the roles and responsibilities of the Board of Directors, management, internal control teams and external audit agencies in the risk prevention and control system to ensure both soundness and effectiveness.



我们基于 COSO 框架，遵循《萨班斯 - 奥克斯利法案》要求，建立风险管理三道防线，明确风险管理工作的层次和分工，制定针对各类风险的具体控制程序。

Based on the COSO Framework and in compliance with the requirements of the *Sarbanes-Oxley Act*, we have established the three lines of defense for risk management, clarified the level and role of risk management, and developed specific control procedures for various risks.



我们开展年度风险识别及重要性评估，包括信息安全风险、人力资源风险、气候变化风险等，并将重要风险评估结果与内控系统有效性向董事会汇报，接受董事会监督。

We carried out annual risk identification and materiality assessment, including risks of information security, human resource, and climate change. The risk assessment results and internal control system effectiveness were reported to the Board of Directors and accepted its supervision.



## 内控与审计

我们每年使用适当的控制标准对内部控制体系的设计有效性和执行有效性进行测试与自我评价。同时，我们每年聘请审计师对集团财务报告及相关的内部控制进行审计，审计师对财务报告相关的内部控制是否存在重大缺陷出具评价，审计结论全文均刊载于本集团网站，接受各相关方审阅与监督。

## Internal Control and Audit

We conduct annual test and self-evaluation of the effectiveness in the design and execution of the internal control system using appropriate control criteria. At the same time, we engage external auditors annually to audit the Group's financial report and related internal control, and the auditors issue an evaluation of whether there are significant deficiencies in internal controls over financial reporting. The full text of the audit conclusions is published on the Group's website for the review and supervision of all relevant parties.

## 风险文化

我们通过建立奖励机制、定期组织培训等方式，培育良好的风险管理文化，以提升员工的风险意识及应对能力。我们将信息安全、反腐败、职业健康与安全等风险管理相关指标纳入高级管理层、部门经理和员工的绩效评估和激励中，指标的评估与考核结果将影响相应人员的绩效奖金发放、调薪幅度及晋升。

## Risk Culture

We maintain a favorable risk management culture through incentive mechanisms, regular organizational training and other ways to raise risk awareness and risk response capability of our employees. We incorporate metrics concerning risk management, including but not limited to information security, anti-corruption and occupational health and safety, into the performance evaluation criteria and incentive systems for executives, department managers and employees. The evaluation and assessment results based on these indicators affect the results of performance bonuses, salary adjustments and promotions of the corresponding personnel.

集团定期为全体董事会成员提供风险管理相关专项培训，保障其了解最新的风险管理趋势和实践。我们通过多种形式向全体员工开展风险相关培训，主题涉及反腐败、安全生产等重点领域，全面提升员工风险管理意识。

The Group organizes risk management specialized training for its board members to keep them up to date with the latest risk management trends and practices. We provide risk-related training involving topics such as anti-corruption and work safety for all staff in various ways to raise their risk management awareness.

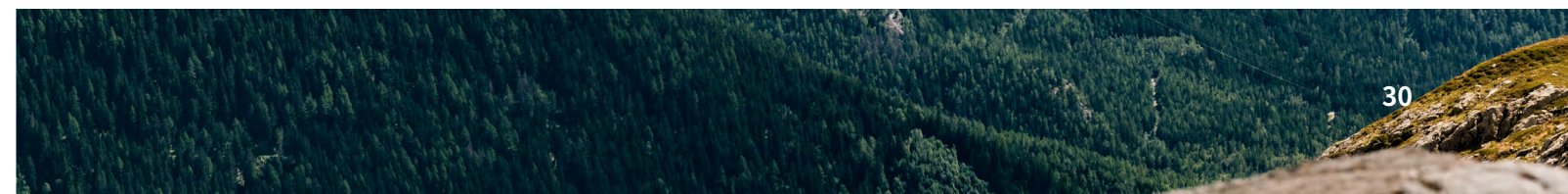


## 商业道德

我们深刻理解坚守商业道德的重要性，严格遵守《中华人民共和国公司法》《中华人民共和国反不正当竞争法》《中华人民共和国反垄断法》《美国反海外腐败法》《萨班斯-奥克斯利法案》等法律法规，制定并发布世纪互联《商业行为与道德规范准则》，要求全体员工及与集团有关的第三方全面遵循规范开展商业活动，并对所有员工和供应商进行道德标准培训。我们根据集团实际情况构建了完善的商业道德与合规管理体系，在正当竞争和反垄断、知识产权管理、反贪污等方面进行明确规定，并对集团各部门职责、汇报线及问责机制进行系统定义。

## Business Ethics

We have a deep understanding of the importance of upholding business ethical and strictly abide by the relevant laws and regulations, including the *Company Law of the People's Republic of China*, the *Anti-Unfair Competition Law of the People's Republic of China*, the *Anti-Monopoly Law of the People's Republic of China*, the *Foreign Corrupt Practices Act of the United States*, and the *Sarbanes-Oxley Act*. We have also formulated and issued the *Code of Business Conduct and Ethics*, requiring employees of the Group and third parties associated with the Group to engage in business activities accordingly. We also provide ethical training for all employees and suppliers. We have established a comprehensive business ethics and compliance management system tailored to the Group, which specifies certain issues, such as legitimate competition, anti-monopoly, intellectual property management and anti-corruption. This systematically defines the responsibilities, reporting lines and accountability mechanisms of each department.





## 知识产权管理

世纪互联持续探索数据中心领域的技术新方向，注重对创新成果的及时有效转化。集团依据《中华人民共和国专利法》《中华人民共和国商标法》及《中华人民共和国著作权法》等知识产权相关法律法规，制定《知识产权管理制度》，完善知识产权管理体系，明确知识产权管理组织架构及职责。

我们在集团发展中不断强化知识产权战略意识，持续优化对专利、商标的管理，加大对专利创新和商标注册的激励力度。我们结合集团发展战略，在绿色节能、智能运维、云原生、AIGC 等技术领域布局专利，为产品业务发展保驾护航的同时，前瞻性地抢占前沿技术在数据中心应用的创新高地，提升集团未来发展竞争力。我们依照专利合作条约（PCT）发起国际专利申请，布局海外专利，为世纪互联参与全球市场竞争提供坚实后盾。

世纪互联在维护自有知识产权的同时避免侵犯他方知识产权。我们关注同业知识产权申请情况，在产品阶段规避侵权风险。同时，我们在申报知识产权之前进行查清检索，避免侵权。在与他方签订合同时，我们详细审核知识产权相应条款，明确约定知识产权归属，避免因归属不明造成的知识产权纠纷。2023 年，集团未发生知识产权侵权事件。

为加强内部的知识产权保护意识，提高专利申请效率，本年度，世纪互联邀请外部讲师开展技术交底书撰写等共 6 场知识产权相关培训。

## Intellectual Property Management

VNET keeps exploring new directions in data center technology, focusing on the timely and effective transformation of innovative achievements. In accordance with the laws and regulations related to intellectual property, such as the *Patent Law of the People's Republic of China*, the *Trademark Law of the People's Republic of China*, and the *Copyright Law of the People's Republic of China*, the Group formulated the *Intellectual Property Management System*, improved the intellectual property management system, and specified the organizational structure and the responsibilities of intellectual property management.

We have continuously strengthened our awareness of intellectual property strategy in the Group's development, optimized the management of patents and trademarks, and increased incentives for patent innovation and trademark registration. Combined with the Group's development strategy, we have laid out patents in such technical fields as green energy saving, intelligent operation and maintenance, cloud native, AIGC, etc., to escort the development of the product business, and at the same time, we have foresightedly seized the innovative high ground of cutting-edge technology application in data centers, so as to enhance the competitiveness for the Group's future development. We have initiated international patent applications in accordance with the Patent Cooperation Treaty (PCT) and laid out overseas patents, providing a solid backing for VNET to participate in global market competition.

VNET avoids infringing on others' intellectual property rights while safeguarding its own intellectual property rights. We keep track of the patent applications of peers to avoid infringement of other parties' intellectual property rights at the product design stage. At the same time, we check and search before declaring intellectual property rights to avoid infringement. When signing contracts with other parties, we meticulously review the terms of intellectual property rights and agree on the ownership of intellectual property rights to avoid intellectual property rights disputes caused by unclear ownership. In 2023, there were no intellectual property infringement cases in the Group.

In order to enhance the internal awareness of intellectual property protection and improve the efficiency of patent applications, VNET invited external lecturers to carry out a total of six intellectual property-related trainings in this year, including the writing of technical submissions.

2023 年世纪互联获得  
In 2023, VNET obtained



截至报告期末，世纪互联累计保有  
By the end of the reporting period, VNET has obtained a total of



## 反贪污

世纪互联对贪污腐败行为采取“零容忍”态度。秉承监督、教育、惩处的原则，集团建立廉洁管理体系，通过《廉政巡察制度》《礼品礼金登记制度》等内部文件，在监督管理、廉政教育、核实查处等方面做出详细规定，并要求全体员工及第三方供应商签署《关于反商业贿赂行为的承诺书》。

世纪互联建立了反贪污风险管理流程，每年识别风险点，并及时督促相关部门进行解决。我们建立了风险识别、评价和控制程序，依据风险识别评价体系模型，在集团范围内识别潜在廉洁风险及管理漏洞。确定风险后，由相关部门开展深入调查并对风险进行分析。针对外部渠道举报，我们亦逐一排查岗位职责和腐败风险点，深入识别贪污事件发生风险并及时解决。目前，集团主营业务所涉及的多场所已通过反贿赂管理体系（ISO 37001）认证。2023 年，未发生针对集团或集团员工提出并已审结的贪污诉讼案件。

## Anti-Corruption

VNET takes a zero-tolerance attitude toward corruption. Adhering to the principles of supervision, education and punishment, the Group has implemented a comprehensive integrity management system. Through internal documents, including the *Integrity Inspection System* and the *Gift Registration System*, detailed regulations have been made regarding supervision management, integrity education, investigation and punishment. In addition, we require all employees and third-party suppliers to sign the *Anti-bribery Commitment Letter*.

VNET has established an anti-corruption risk identification management process and conducts annual inspections to identify risks and urge relevant departments to resolve risks in a timely manner. We have developed a risk identification, evaluation and control process, and created a risk identification and evaluation system model to identify potential integrity risks and management loopholes within the Group. When a risk is identified, the relevant departments conduct investigations and carry out analysis of integrity risks. For whistleblowing reports from external channels, we also investigate post responsibilities and corruption risks, aiming to identify the risk of bribery incidents and promptly address them. Currently, a number of sites involved in the Group's main business have been certified to the Anti-bribery Management Systems (ISO 37001). In 2023, there were no concluded legal cases regarding corrupt practices brought against the Group or its employees.



我们开展多层次的反贪污培训和宣贯，以提高全体员工的廉洁风险防范能力，建设透明、诚信的廉洁文化。集团依据部门业务属性，对相关风险较高的部门及岗位开展针对性的廉洁培训及教育座谈会，并在日常管理中重点进行重点监察。在管理层侧，我们通过访谈方式向高管宣贯解读集团反舞弊政策，树立全员廉洁从业意识。在员工侧，我们将反贪污相关培训课程纳入员工培训体系，围绕集团反贿赂文化、贿赂行为处罚、举报要求、举报人保护等内容展开宣贯。我们每月举办新员工反贪污培训，并将反贪污培训考试成绩纳入新员工试用期考核。同时，集团在“智信互联”平台开设廉政教育专栏，定期推送廉政教育内容和警示案例。此外，作为企业反舞弊联盟的成员企业，世纪互联积极参与反舞弊联盟组织的线上课程及线下培训，助力构建廉洁商业环境。

We carry out anti-corruption training and publicity programs at multiple levels to improve the ability of all employees to prevent integrity risks, and cultivate a transparent and honest integrity culture. Drawing on the unique business characteristics of each department, we provide tailored integrity training and educational seminars to departments and positions with higher risks of corruption. Additionally, these departments undergo focused supervision as part of their daily management. We conduct interviews with executives to communicate and explain the Group's anti-fraud policy at the management level to establish awareness of clean practices among all employees. For employees, we include anti-corruption training courses in our employee training system to increase their understanding of the Group's anti-bribery culture, penalties for bribery, whistleblowing requirements, and whistleblower protection measures. We conduct anti-corruption training for new employees every month and include anti-corruption training test results in new employee assessments during their probation period. Meanwhile, the Group has set up an Integrity Education column on the i-Vnet platform to regularly post integrity education content and cautionary cases. In addition, as a member company of the Enterprise Anti-Fraud Alliance, VNET actively participates in online courses and offline training sessions organized by the Alliance to help cultivate a clean business environment.

本年度，世纪互联董事及员工反贪污培训覆盖率为 100%，新员工反贪污培训考试通过率为 100%。我们参与企业反舞弊联盟组织的月度会议 11 次，向员工推送廉政建设主题相关文章 12 篇，在办公区域张贴宣传警示海报 8 张。

This year, VNET provided anti-corruption training for 100% of directors and employees, and achieved a 100% pass rate in anti-corruption training exams for new employees. We attended 11 monthly meetings organized by the Enterprise Anti-Fraud Alliance, published 12 online articles related to integrity education for employees, and put up 8 warning posters in the office area.

11 次

参与企业反舞弊联盟组织的月度会议  
Attend the monthly meetings organized by the Enterprise Anti-Fraud Alliance

12 项

向员工推送廉政建设主题相关文章  
Publish online articles related to integrity education for employees

8 张

在办公区域张贴宣传警示海报  
Put up warning posters in the office area



## 投诉举报与保护机制

### Whistleblowing and Protection Mechanism

世纪互联制定《举报投诉处理管理规定》《廉洁及举报奖励方案》等制度，规定举报及投诉受理流程，内外部利益相关方均可以通过邮箱、电话等渠道进行实名或匿名举报及投诉。对于需展开调查的举报及投诉，我们将立即启动调查程序，调查流程及处理结果直接向管理层和董事会汇报。

VNET has developed various systems such as the *Regulations on the Handling of Whistleblowing and Complaints* and the *Integrity and Whistleblowing Rewards Program*, outlining the procedures for accepting whistleblowing reports and complaints. Internal and external stakeholders can make non-anonymous or anonymous whistleblowing reports and complaints via email, telephone and other channels. For any whistleblowing reports and complaints that require further investigation, we immediately initiate the investigation procedures and processes, and report the investigation results directly to the management and the Board of Directors.

#### 举报及投诉处理流程

#### Whistleblowing and Complaint Handling Process





集团向包括员工、供应商在内的所有相关方公开举报及投诉渠道：

The Group offers whistleblowing channels to all relevant parties, including employees and suppliers:

 <p>24X7 举报专线 24*7 Whistleblowing Hotline</p>	<p>+86-10-84562121 分机 1897 +86-10-84562121-1897</p>
 <p>举报邮箱 Whistleblowing E-Mail</p>	<p>ju.bao@vnet.com</p>
 <p>邮寄地址 Address</p>	<p>北京市朝阳区酒仙桥东路 10 号冠捷办公楼 世纪互联集团廉政监察部 VNET, Head of the Integrity Department, Guanjie, No.10, Jiuxianqiao East Road, Chaoyang District, Beijing</p>
 <p>邮政编码 Postal Code</p>	<p>100016</p>

我们尊重并保护每一位举报人及投诉人，严格控制集团内部举报及投诉信息的知悉范围，通过技术加密和物理隔绝等手段严格保密调查过程中涉及的材料，除非投诉、举报人同意，我们不会公开其个人信息，坚决维护投诉、举报人的正当权益。集团亦接受匿名举报，且保障匿名举报的渠道畅通。对违反保密规定、不正当履行职责的调查人员，以及对投诉及举报人打击报复、或对调查人员采取敌对措施的人员，集团将依法严肃处理，情节严重者则移交司法机关。

We respect and protect every whistleblower and complainant. We strictly control the access to information related to whistleblowing reports and complaints within the Group. Confidential materials that are involved in the investigations are protected through several means as technical encryption and physical isolation. We do not disclose the personal information of the complainants or whistleblowers without their consent, and strictly safeguard their legitimate rights and interests. The Group also accepts anonymous whistleblowing reports and makes channels readily available. The Group takes strict action against investigators who violate the confidentiality provisions and improperly fulfill their duties, as well as those who retaliate against the complainants and whistleblowers or take hostile measures against investigators, and those with serious circumstances will be handed over to the judicial authorities.

关键环节保护  
Protection during Critical Steps

- 在办公区放置举报箱，并调整摄像头监控的角度，不允许监控到投诉人、举报人的图像；  
Place reporting box in the office area, and adjust the monitoring angle of the camera to make sure that images of complainants and whistleblowers are not monitored.
- 坚持“知情范围最小”原则，仅限于指定人员才有权获知投诉举报及其调查信息；  
Adhere to the principle of "minimum scope of knowledge", and only designated personnel have the right to receive information about reports and investigations.
- 监察人员与投诉举报人“一对一单线联系”，不得擅自泄露案情，不得将案情透露给被投诉人、被举报人；  
Investigators will follow "one-on-one and single-line contact" to communicate with complainants or whistleblowers, shall not disclose the case without permission, and shall not disclose the case to people subjected to the cases.
- 举报奖励通过专属通道发放，确保举报人得到有效保护；  
Rewards for whistleblowing are issued through exclusive channels to ensure effective protection for whistleblowers.
- 绝不姑息任何对反映问题或投诉举报员工的打击报复行为。  
There is no tolerance for any retaliation against employees for reporting problems or complaints.



# 共筑可持续未来 迈向零碳

## Embracing Sustainability Together Heading Toward a Zero-Carbon Future

世纪互联积极应对气候机遇与挑战，力争构建企业气候竞争力，并推动行业与供应链上下游共同实现应对气候变化目标，实现企业与社会的绿色转型。

VNET actively responds to climate opportunities and challenges, strives to build corporate climate competitiveness, promotes the industry and the upstream and downstream of the supply chain to jointly achieve the goal of combating climate change, and realizes the green transformation of enterprises and society.

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Responding to Climate Change

59 / 绿色数据中心全生命周期建设  
Full-Lifecycle Construction of Green Data Centers

65 / 可持续运营  
Sustainable Operations





面对全球气候变化挑战，我们制定了充满雄心的碳中和目标，以及科学合理的碳中和策略，推动集团低碳转型、助力社会经济绿色发展。我们构建全生命周期的绿色数据中心解决方案，积极推动数据中心能源转型，引领搭建以新能源为主体的新型电力系统，重视资源使用效率的提升，推动循环经济发展，坚持绿色可持续发展道路。

Facing the global challenge of climate change, we have set ambitious goals and scientific, reasonable strategies for becoming carbon neutral. The goal of our efforts is to advance the Group's low-carbon transition and the social economy's green development. We are creating a full-lifecycle green data center solution, leading the establishment of a new type of power system dominated by green energy. In addition, we are focusing on improving resource utilization efficiency, promoting the development of a circular economy, and adhering to the path of green development.

## 应对气候变化 Responding to Climate Change

作为气候相关财务信息披露组（TCFD）的支持机构，世纪互联将气候变化纳入企业战略考量，基于潜在财务影响的程度、对业务活动稳定性的影响、客户及股东关注等维度，定期对资产及业务相关的气候风险及机遇开展评估。我们围绕治理、战略、风险管理、指标和目标四个核心方面披露我们应对气候变化工作的进展。

As a supporter of the Task Force on Climate-related Financial Disclosures (TCFD), VNET incorporates climate change into its corporate strategic considerations, and regularly conducts assessments of climate risks and opportunities associated with assets and businesses based on factors such as potential financial impacts, the stability of business activities, as well as customer and shareholder concerns. We disclose our progress in dealing with climate change from four core aspects: governance, strategy, risk management, metrics and targets.

## 治理 Governance

世纪互联将气候变化纳入 ESG 管治架构，保障气候变化议题与其他重大 ESG 议题共同纳入集团的整体战略考量中。我们将责任部门人员的职业发展计划与气候相关管理指标挂钩，包含提升可再生能源使用比例、碳资产优化等指标，旨在持续推动责任部门管理人员及员工积极行动。

VNET incorporates climate change into its ESG governance structure to ensure that climate change issue is factored into the Group's overall strategic considerations, along with other major ESG issues. In order to continuously motivate management personnel and employees in responsible departments, we link the career development plans of our responsible departments to climate-related management indicators, including increasing the proportion of renewable energy use and optimizing carbon assets.

### 董事会职责 Responsibilities of the Board of Directors

- 把控气候变化战略方向  
Steering the climate change strategy
- 检讨及监督气候变化相关目标的制定及实施情况  
Reviewing and supervising the setting and implementation of climate change related targets
- 监督及管理气候变化相关工作落地执行情况  
Supervising and managing the implementation of climate change related work
- 定期听取管理层就气候变化事宜的汇报  
Receiving regular briefings from management on climate change issues

### 管理层职责 Responsibilities of the Management Team

ESG 执行委员会由 CEO 领导的相关部门高级管理人员组成，职责包括：  
Led by the CEO, the ESG Execution Committee is comprised of senior management personnel from relevant departments. Its responsibilities are as follows:

- 制定气候变化战略与年度工作目标和重点提升工作计划  
Developing climate change strategies, annual performance targets, and plans of key improvement areas
- 定期检讨气候变化相关工作的落地执行情况，并每季度向董事会进行汇报  
Regularly reviewing the implementation of climate change related work and reporting the progress to the Board of Directors on a quarterly basis
- 定期听取 ESG 中心作为统筹机构，就规划、推进与落实气候变化相关工作的进展汇报  
Receiving regular briefings from the ESG Center on the progress of planning, promoting, and implementing climate change related work
- 定期听取 ESG 工作小组就气候变化工作的进展汇报  
Receiving regular briefings from the ESG Working Group on the progress of climate change related work



**执行层职责**  
Responsibilities of the Executive Team

集团 ESG 相关部门负责人及成员共同组成 ESG 工作小组，职责包括：  
The ESG Working Group, consisting of leaders and members from relevant functional departments, is responsible for:

- 根据气候变化风险应对方案制定具体工作计划及应对措施  
Developing specific work plans and response measures according to the climate change risk response plans
- 推进落实集团气候变化相关的内外部工作方案  
Promoting the implementation of the Group's internal and external work programs related to climate change
- 定期检讨气候变化相关工作的执行情况  
Reviewing the implementation of climate change related work on a regular basis
- 定期向管理层汇报气候变化工作的进展  
Reporting the progress of climate change related work to the management team on a regular basis

集团平台、分公司 / 子公司及专业顾问的职责包括  
The Group's platform, subsidiaries/affiliates and professional consultants are responsible for

- 执行具体的气候变化相关提效减碳措施  
Implementing specific efficiency improvement and carbon reduction measures to address climate change
- 定期汇报气候变化相关工作的进展  
Reporting the progress of climate change related work on a regular basis
- 专业顾问对集团气候变化风险应对方案提出专业建议  
Professional consultants provide professional advice on the Group's climate change risk response plans

## 战略 Strategy

基于世纪互联碳排放现状及我们的业务模式，我们优化“4C”碳中和路径，即通过碳减排 (carbon reduction)、碳清除 (carbon removal)、碳抵消 (carbon offset)、碳赋能 (carbon empowerment) 四个维度，充分利用节能技术应用、可再生能源转型、碳交易、产业链上下游赋能等途径，推动集团碳中和目标的达成。

Based on our current carbon emission status and business model, we have optimized the "4C" pathway towards carbon neutrality, through four dimensions of carbon reduction, carbon removal, carbon offset and carbon empowerment, fully leveraging an array of approaches including energy-saving technology use, renewable energy transition, carbon trading, and empowerment of the upstream and downstream industrial chain to achieve our carbon neutrality target.

### 碳减排

#### Carbon Reduction

通过节能技术应用及智能化运维等方式不断提升数据中心能源效率，并通过可再生能源投资及绿电交易等途径实现可再生能源使用，促进减少碳排放。

Continuously improve energy efficiency in data centers through energy-saving technologies and intelligent operation and maintenance. Achieve the use of renewable energy through renewable energy investment and green power trading and other ways to promote the reduction of carbon emissions.

### 碳清除

#### Carbon Removal

通过植树造林等方式吸收二氧化碳，降低大气中的二氧化碳浓度。

Reduce the concentration of carbon dioxide in the atmosphere through afforestation and other ways to absorb carbon dioxide.

## “4C” 碳中和 "4C" carbon neutral

### 碳抵消

#### Carbon Offset

对于仍然难以减少或清除的碳排放，通过参与碳排放权交易体系、国家核证自愿减排量项目及绿证交易等方式进行这一部分碳排放的抵消。

Through participation in the carbon emission trading system, China Certified Emission Reduction projects, green certificate trading and other ways to offset the carbon emissions that are still difficult to be reduced or removed.

### 碳赋能

#### Carbon Empowerment

通过建立绿色低碳采购模式，定期公开披露集团碳中和进展，推动产业链践行减碳行动，在绿色发展及实现碳中和目标方面引领行业。

Promote carbon reduction actions across the industrial chains through adopting a green and low carbon procurement model and regularly disclosing the Group's carbon neutrality progress to become an industry leader in green development and achieving carbon neutrality target.



本年度，我们持续推进分布式光伏、深入开展储能及氢能研究、积极推进绿电交易、不断探索数据中心冷却及余热回收等技术创新，并取得了多项成果。

In 2023, we have continued to promote distributed photovoltaic, conducted in-depth research on energy storage and hydrogen energy, facilitated green power trading, explored technological innovations such as data center cooling and waste heat recovery, resulting in multiple remarkable results.

策略 Strategies	行动方向 Directions of action	短期路径 Short-term pathways	长期路径 Long-term pathways	我们的进展 Our progress
碳减排 Carbon reduction	绿色建筑 Green buildings	<p>在规划设计阶段考虑绿色建筑实施可行性。 Consider the feasibility of green building implementation at the planning and design stage.</p> <p>新建标准提高，存量优化。 Increase standards for new constructions and optimize existing buildings.</p>	<p>实现 100% 绿色建筑<sup>1</sup>。 Achieve 100% green buildings<sup>1</sup>.</p>	<ul style="list-style-type: none"> <li>累计获得绿色数据中心认证 10 个。 A total of 10 green data center certifications have been obtained.</li> </ul>
	节能技术应用 Application of energy-saving technology	<p>新购设备能效标准持续提升，现有设备能效持续提升。 Continue to improve energy efficiency standards for newly purchased equipment and increase the energy efficiency of existing equipment.</p> <p>逐步推广余热回收。 Promote waste heat recovery.</p>	<p>实现 100% 高效设备及技术应用。 Achieve 100% high-efficiency equipment and technology applications.</p>	<ul style="list-style-type: none"> <li>推出业内首个第三代全新架构的风、液组合高强冷却解决方案，低碳节能效果显著。 Launched the industry's first third-generation new architecture wind-liquid combined high-intensity cooling solution, delivering remarkable low-carbon energy-saving effects.</li> <li>深入研究余热回收技术，实现余热回收项目落地。 Conducted in-depth research on waste heat recovery technology, implementing waste heat recovery project.</li> <li>优化配电系统架构，使用高效节能配电设备。 Optimized the structure of power distribution systems, and used high-efficiency and energy-saving distribution equipment.</li> <li>推出“深寒”系统，提高制冷能效。 Launched the "Shen-han" cooling solution to improve energy efficiency of cooling.</li> </ul>
	智能化运维 Intelligent operation and maintenance	<p>实现数字资产全面感知、智能分析、智慧运维。 Realize comprehensive perception, intelligent analysis, intelligent operation and maintenance of digital assets.</p>	<p>推动智能化运维系统在自有数据中心全覆盖并赋能产业链。 Promote the full coverage of intelligent operation and maintenance system in self-owned data centers to empower the industrial chain.</p>	<ul style="list-style-type: none"> <li>全国 40 个数据中心实现智航平台上云，实现智能绿色运维，科学高效开展节能减碳工作。 The 40 data centers across the country have realized the Data Center Infrastructure Management platform on the cloud, realized intelligent and green operation and maintenance, and carried out energy saving and carbon reduction work in a scientific and efficient manner.</li> <li>应用 AI 能效管理技术。 Applied AI energy efficiency management technology.</li> <li>推进双碳管理及能效监控平台的应用，实现精准碳管理。 Promoted the application of a Dual Carbon Management and Energy Efficiency Monitoring Platform to achieve precise carbon management.</li> </ul>

注： 1. 绿色建筑是指获得国际或国内绿色建筑认证的数据中心，包括开放数据中心委员会（ODCC）数据中心绿色等级证书、工信部数据中心绿色等级证书以及其他同等或更高级别的绿色建筑评估认证。

Notes: Green buildings refer to data centers that have received international or domestic green building certification, including the Open Data Center Committee (ODCC)'s certification for green data centers, the Ministry of Industry and Information Technology's certification for green data centers, and other green building rating certifications of the same level or higher.



策略 Strategies	行动方向 Directions of action	短期路径 Short-term pathways	长期路径 Long-term pathways	我们的进展 Our progress
<b>碳减排</b> Carbon reduction	可再生能源投资 Renewable energy investment	在选址阶段考虑气候可行性及风光资源丰富度。 Consider climatic feasibility and scenic richness during the site selection phase. 在数据中心园区安装分布式光伏设备。 Install distributed photovoltaic equipment in data centers.	扩大园区可再生能源设备来源及应用范围，探索市场化交易。 Expand the sources and application of renewable energy equipment in the park and explore market-based trading.	<ul style="list-style-type: none"> <li>北京亦庄博兴数据中心及广东佛山智慧城市数据中心的光伏发电项目 2023 年合计发电约 27.25 万千瓦时，减少二氧化碳 221 吨。 The photovoltaic power generation projects of Beijing Yizhuang Boxing Data Center and Guangdong Foshan Smart City Data Center generate a total of approximately 272,500 kWh of electricity in 2023, reducing 221 tonnes of CO<sub>2</sub>.</li> </ul>
		持续开展储能技术研究并逐步扩大储能技术在数据中心的应用。 Continue to study energy storage technology and expand its application in data centers.	进一步发挥储能技术在可再生能源稳定供电方面的作用。 Further exploit the role of energy storage technology in the steady supply of renewable energy.	<ul style="list-style-type: none"> <li>与清华大学能源互联网创新研究院及多家机构，联合发起全球协同创新倡议“新储能 -SPEAR 2030 行动”计划。 Jointly initiated the global collaborative innovation initiative "New Energy Storage - SPEAR 2030 Action" plan with Energy Internet Research Institute Tsinghua University and a number of organizations.</li> <li>建成我国首个应用规模化新型储能技术的数据中心——佛山智慧城市数据中心，凭借其“大规模储能 + 光伏”的应用，获得 2022-2023 数据中心高质量节能减排案例。 Built Foshan Smart City Data Center, China's first data center applying new large-scale energy storage technology, with its "large-scale energy storage + photovoltaic" application, won the 2022-2023 Data Center High-quality Energy Saving and Emission Reduction Case.</li> <li>乌兰察布数据中心规划设计“源网荷储”一体化新型电力系统项目。 Planned and designed a novel integrated power system project, incorporating "source-grid-load-storage" integration model for the data center in Ulanqab.</li> <li>与中电工程合作，在河北怀来等地推进净零碳数据中心新能源系统建设，探索“源网荷储”一体化模式，打造“数能融合”示范工程。 Promoted the construction of new energy systems for net-zero-carbon data centers in places such as Huailai, Hebei Province, in cooperation with CPECC, exploring the integration of "source-grid-load-storage" modes, and creating a "digital-energy integration" demonstration project.</li> <li>编写《储能技术白皮书》。 Prepared <i>White Paper on Energy Storage Technology</i>.</li> </ul>
	深入开展氢能在数据中心的应用研究。 In-depth research on the application of hydrogen energy in data centers.	在可行的条件下，持续推动氢能等其他清洁能源在数据中心的应用。 In feasible conditions, continuously promote the application of hydrogen and other clean energy in data centers.	<ul style="list-style-type: none"> <li>开展制氢、储氢、输氢等模块技术研究。 Conduct research on modular technologies for hydrogen production, storage and transportation.</li> <li>开展固定式氢燃料电池中试预研项目研究。 Conduct research on pilot pre-study projects on stationary hydrogen fuel cells.</li> <li>对氢能发电站建设开展预研工作。 Conduct pre-study on the construction of hydrogen power stations.</li> <li>编写《数据中心氢长时储能发展白皮书》。 Write the <i>White Paper on the Development of Hydrogen Long-Term Energy Storage for Data Centers</i>.</li> </ul>	
绿电交易 Green power trading	在选址阶段考虑可再生能源可及性。 Consider renewable energy accessibility during the site selection phase. 在数据中心开展绿电交易，积极推动与政府、发电企业交流合作。 Conduct green power trading in data centers and actively promote exchanges and cooperation with government and power generation enterprises.	推动并扩大数据中心规模化绿电交易。 Promote and scale up green power trading in data centers.	<ul style="list-style-type: none"> <li>参与多地区绿电交易，本年度购买绿电约 5,690 万千瓦时。 Participation in multi-region green power trading, purchasing about 56.90 million kWh of green power during the year.</li> <li>与中广核太阳能签订 2023 年绿电购买协议（约 400 万千瓦时），其中包含五年约 5 亿千瓦时的绿电供给保障条款。 Signed a 2023 green power purchase agreement (approximately 4 million kWh) with CGN Solar (Shenzhen) Co., Ltd., which contains a five-year green power supply guarantee clause of about 500 million kWh.</li> <li>合作推进利用绿色专线向数据中心直供可再生能源项目。 Collaborate on the project to promote the use of green lines to supply renewable energy directly to data centers.</li> </ul>	



策略 Strategies	行动方向 Directions of action	短期路径 Short-term pathways	长期路径 Long-term pathways	我们的进展 Our progress
碳清除 Carbon removal	植树造林 Afforestation	积极开展植树活动。 Actively carry out tree-planting activities.	优化树种选择，持续扩大植树造林面积。 Optimize the selection of tree species and continue to expand the afforestation area.	<ul style="list-style-type: none"> <li>于北京市延庆区开展植树活动，建成 2023 年世纪互联公益林。 Conducted a tree-planting event in Yanqing District, Beijing, and created the 2023 VNET non-profit forest.</li> </ul>
碳抵消 Carbon offset	投资优质碳抵消项目 Investment in quality carbon offset projects	关注碳交易市场发展。 Keep tabs on the carbon trading market. 积极探索优质碳抵消项目机会。 Actively explore opportunities to invest in quality carbon offset projects.	积极参与碳交易市场。 Actively engage in the carbon trading market. 积极投资优质碳抵消项目。 Actively invest in quality carbon offset projects.	<ul style="list-style-type: none"> <li>参与碳排放权交易试点工作。本年度，北京地区出售了约 5,000 吨的结余碳排放配额，上海地区购买了 246 吨碳排放配额。 Participated in the pilot work of carbon emission rights trading. In this year, we sold about 5,000 tonnes of carbon emission quotas in Beijing, and purchased 246 tonnes of carbon emission quotas in Shanghai.</li> <li>持续关注碳抵消项目市场并探索参与机会。 Paid close attention to the carbon offset project market and explored opportunities for participation.</li> </ul>
	绿证交易 Green certificate trading	将绿证交易作为实现集团碳中和目标的补充方式。 Take green certificate trading as a complementary way to achieve the Group's carbon neutrality target.		
碳赋能 Carbon empowerment	产业链赋能 Industrial chain empowerment	建立绿色采购标准，提升绿色采购比率。 Establish green procurement standards and improve green procurement ratio. 加强内部碳相关主题培训。 Enhance internal training on carbon-related topics. 参与相关行业标准制定。 Participate in the formulation of relevant industry standards.	实现 100% 绿色采购。 Achieve 100% green procurement. 持续对内部进行碳赋能。 Continue to carbon empowerment internally. 推动行业低碳发展，分享绿色实践，带动产业链上下游迈向零碳。 Promote low-carbon development in the industry, share green practices, and drive the entire industrial chain towards zero-carbon emissions.	<ul style="list-style-type: none"> <li>世纪互联蓝云推出一站式绿证服务，向企业级客户提供国际绿证 I-REC、中国绿证 GEC 等，助力产业链实现可持续发展。 21Vianet Blue Cloud launched a one-stop green certificate service, providing enterprise-level customers with international renewable energy certificates I-REC, green electricity certificates of China GEC, and etc., helping the industry chain to realize sustainable development.</li> <li>开展《绿色零碳时代 - 数据中心绿电系列分享》内部培训，为员工在绿电使用及低碳管理能力提升方面赋能。 Conducted internal training on "Green Zero Carbon Era - Data Center Green Power Series Sharing" to empower employees in the use of green power and the enhancement of low-carbon management capabilities.</li> <li>参编《零碳数据中心评价标准》。 Participated in the preparation of <i>Evaluation Standards for Zero-carbon Data Centers</i>.</li> <li>参编《数据中心碳排放核算审查计量研究报告》。 Participated in the preparation of <i>Study Report on Data Center Carbon Emission Accounting, Verification and Measurement</i>.</li> </ul>



## 气候风险及机遇识别和评估

将气候变化纳入集团战略层面的分析决策对我们理解、缓解与适应，以及管理对业务产生直接影响的气候风险、把握气候相关机遇至关重要。我们开展了气候变化分析，以加强对气候风险的评估和管理，规划并优化减排路径。

由于气候变化可能在不同时间范围内为集团带来不同程度的影响，我们参考共享社会经济路径（SSP）的严格路径情景（SSP1-2.6）和高排放路径情景（SSP5-8.5）以及参考国际能源署（IEA）2050 净零排放情景（IEA NZE）和既定政策情景（IEA STEPS）当中的风险参数因子，分析潜在的实体风险及过渡风险与机遇。

## Identification and Assessment of Climate Risks and Opportunities

The analysis and decision of incorporating climate change into the Group's strategy are of vital importance for us to understand, mitigate, adapt to, and manage climate risks that have a direct impact on our business and to seize climate-related opportunities. We carried out climate change analyses to enhance the assessment and management of climate risks, and to plan and optimize emission reduction measures.

Given that climate change may affect the Group to varying degrees over different time horizons, we analyze potential physical and transition risks and opportunities by referencing the risk parameter factors of the strict path scenario (SSP1-2.6) and high emission path scenario (SSP5-8.5) of the Shared Socioeconomic Pathways (SSP), the 2050 Net Zero Emissions Scenario (NZE) and the Stated Policies Scenario (STEPS) of the International Energy Agency (IEA).

我们结合集团业务性质及运营的地理位置以及价值链运营等信息，并结合时间范围（包括短期、中期和长期），对各类有可能产生实质性影响的气候变化风险与机遇的潜在影响、影响环节与周期进行分析，并制定相应的应对策略。以下是我们识别出的优先的气候变化相关风险和机遇及其相关影响和应对策略的详细信息：

We integrated information regarding the nature of the Group's business, operational geography, value chain operations, as well as the time horizons (including short, medium, and long term). We analyze the potential impacts, impact segments and cycles of various climate change risks and opportunities that may have a material impact, and develop appropriate countermeasures. Below are details of the prioritized risks and opportunities related to climate change we have identified, as well as their associated impacts and countermeasures:



风险类型 Risks Type	风险描述 Risks Description		影响环节 Impact Segment	影响周期 Impact Cycle	应对策略 Countermeasures
急性实体风险 Acute physical risk	极端气候频率和强度大幅增加 Significant increase in frequency and severity of extreme weather events	<ul style="list-style-type: none"> <li>在企业层面，全球范围内由于气候变化引发的极端天气事件，包括极端降雨，台风、洪灾等，均有可能威胁到我们的数据中心以及客户 IT 设备的物理安全、电力稳定供应、以及短期用电成本。 At the enterprise level, worldwide extreme weather events caused by climate change, such as extreme rainfall, typhoons, and floods, may threaten the physical security, stable power supply, and short-term electricity cost of our data centers and the IT equipment of our customers.</li> <li>地区性极端天气事件发生的频率和强度持续增加，进一步加剧了急性风险发生的可能性及影响程度。 The growing frequency and intensity of regional extreme weather events further increases the possibility and impact of acute risks.</li> <li>极端天气可能对灾害地点的工作人员构成安全威胁。 Extreme weather may pose a safety threat to workers at disaster locations.</li> </ul>	运营 Operation	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>为了减缓此类风险影响，我们考虑极端天气事件在资产生命周期各个阶段的风险敞口。 To mitigate the impact of such risks, we consider the risk exposure of extreme weather events at all stages of the asset lifecycle.</li> <li>在数据中心设置了应对实体风险因素的有效管理措施。 Effective management measures to address physical risk factors are in place at the data centers.</li> <li>我们制定极端天气应急预案等指导性文件，每年度开展应急事件演练。 We develop guidance documents such as extreme weather contingency plans and conduct annual drills for emergency events.</li> <li>我们接收来自保险服务商的报告，并据此为每项资产设置适当的保险。 We receive reports from insurance service providers and set up appropriate insurance for each asset accordingly.</li> </ul>
慢性实体风险 Chronic physical risk	高温 High temperature	<ul style="list-style-type: none"> <li>高温可能缩短集团员工露天工作时间，并对防暑降温提出更高要求。 Hot weather may shorten the working hours of the Group's employees in the open air and place higher requirements for heatstroke prevention and cooling.</li> <li>高温导致数据中心设备冷却难度增加。 Hot weather may increase the difficulty in cooling equipment at data centers.</li> <li>火灾发生的可能性上升，可能面临运营中断或资产损失。 The likelihood of a fire is raised, potentially exposing us to the risk of operational interruption or asset loss.</li> </ul>	运营 Operation	长期 Long-term	<ul style="list-style-type: none"> <li>我们关注员工的职业健康与安全，针对高温天气下员工户外活动提供一系列防护措施及福利补贴。 We are always concerned about the occupational health and safety of our employees and provide a series of protective measures and subsidies for outdoor operations of employees in hot weather.</li> <li>我们在规划选址阶段更加慎重，考虑在高温天气持续时间较长的地区建设数据中心的潜在实体风险，避免或提前采取应对举措。 We apply greater prudence in the planning and siting phase, considering the potential physical risks of building data centers in areas with prolonged hot weather to avoid relevant risks or to take early countermeasures.</li> <li>我们在设计阶段重点考虑并优化制冷系统，在运营阶段通过多种技术升级，持续提升制冷效率。 We optimize cooling systems during the design phase and continuously improve cooling efficiency through various technology upgrades during the operational phase.</li> <li>我们制定《消防安全管理制度》等指导性文件，并定期开展消防演练，以降低火灾发生造成的损失。 We formulate guiding documents such as the Fire Safety Management System and conduct regular fire drills to minimize losses caused by fires.</li> </ul>
	水资源压力 Water stress	<ul style="list-style-type: none"> <li>水资源压力可能转换为数据中心设备冷却压力，影响运营稳定性。 Water stress may translate into data center equipment cooling stress, affecting operational stability.</li> <li>严重的干旱可能导致更高的水费，提高运营成本。 Severe droughts can lead to higher water bills and higher operating costs.</li> </ul>	运营 Operation	长期 Long-term	<ul style="list-style-type: none"> <li>我们高度关注数据中心所在地的水资源供给能力，对当地当前和未来的水资源情况进行分析和评估，从前端规划设计减少水资源消耗。 We pay great attention to the water supply capacity of the data center location, analyze and evaluate the current and future water resources situation in the local area, and reduce water consumption from the front-end planning and design.</li> <li>我们持续推进中水的综合利用，提高用水效率，积极研发无水冷却技术，不断降低对水资源的依赖性。 We continue to promote the comprehensive utilization of reclaimed water, improve water use efficiency, and actively develop water-free cooling technologies to continuously reduce dependence on water resources.</li> </ul>
	海平面上升 Sea-level rise	<ul style="list-style-type: none"> <li>长期来看，海平面上升可能会淹没沿海地区数据中心，带来资产及收入损失。 In the long run, rising sea levels may flood data centers in coastal areas, resulting in loss of assets and revenue.</li> </ul>	运营 Operation	长期 Long-term	<ul style="list-style-type: none"> <li>我们考虑在沿海地区建设数据中心的潜在实体风险，持续优化数据中心布局。 We consider the potential physical risks of building data centers in coastal areas and constantly optimize the layout of data centers.</li> </ul>



风险类型 Risks Type	风险描述 Risks Description	影响环节 Impact Segment	影响周期 Impact Cycle	应对策略 Countermeasures
政策和法律 Policy and legal	<ul style="list-style-type: none"> <li>碳排放相关法律法规、监管政策和税种、强制碳交易等可能增加我们的运营合规成本。 As laws and regulations, regulatory policies and taxes related to carbon emissions, and mandatory carbon trading come into effect, compliance costs may rise.</li> </ul>	运营 Operation	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>我们加强能源使用管控，并逐步提高可再生能源占比。 We strengthen energy management and control as well as gradually raising the proportion of renewable energy.</li> <li>专业团队定期研读国家法律法规和运营所在地新兴政策，制定应对方案。 The dedicated team regularly studies national laws and regulations and emerging policies in the location of operation to formulate response plans.</li> </ul>
	<ul style="list-style-type: none"> <li>数据中心建设规范和标准预计将变得更加严格，可能增加设计和建造成本，并需要应用新技术。 There are expected to be more stringent codes and standards for data center construction, potentially increasing design and construction costs and requiring the application of new technologies.</li> </ul>	运营 Operation	中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>按照高标准设计建设数据中心，以减少任何数据中心建设规范对运营和发展的影响。 We adhere to high standards when building data centers to reduce the impact of any data center construction codes on data center operations and development.</li> <li>更多关于我们在数据中心建设方面的举措，请参见：规划设计、项目建设。 For more information about the risk-mitigating measures we adopt in data center construction, please refer to: Planning &amp; Design, Project Construction.</li> </ul>
科技 Technology	<ul style="list-style-type: none"> <li>若未能及时识别并应用低碳技术、人工智能等新兴技术，可能导致我们的运营效率降低，和 / 或产品落后于同业，在市场竞争中失去优势进而影响集团收入。 Failure to identify and apply emerging technologies promptly, such as low-carbon technology and artificial intelligence, may result in our operations becoming less efficient and/or our products lagging behind those of our peers, losing our edge in the competitive market and thus affecting the Group's revenue.</li> </ul>	运营 Operation	短期 Short-term 中期 Mid-term	<ul style="list-style-type: none"> <li>我们积极探索技术进步的可能性，包括储能技术、氢能研究、智航平台开发与应用等，加强绿色低碳的智能化信息基础设施建设。 We actively explore the possibility of achieving technological advances in energy storage technology, hydrogen energy research, development and application of Data Center Infrastructure Management platform, and strengthen the construction of a green, low-carbon and intelligent IT infrastructure .</li> </ul>
市场 Market	<ul style="list-style-type: none"> <li>如果市场对于低碳数据中心的偏好持续上升，集团需在把握市场转变及应对市场低碳需求方面优于同行，否则可能会导致产品和服务的需求降低，引起收入和市场份额的损失。 If the market's preference for low-carbon data centers continues to rise, the Group needs to outperform its peers in adapting to the market shift and responding to the low-carbon demand in the market. Otherwise, it may lead to lower demand for products and services, resulting in loss of revenue and market share.</li> </ul>	下游 Downstream	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>为了管理此类风险，我们通过沟通反馈机制积极跟踪客户需求，并致力于在可再生能源和低碳目标（减排目标）方面取得关键进展，推进低碳数据中心建设。 To control such risks, we actively track customer needs through communication and feedback mechanisms. We are also committed to making key progress in renewable energy and low-carbon targets (emission reduction targets) and advancing the construction of low-carbon data centers.</li> </ul>
	<ul style="list-style-type: none"> <li>在过渡到可再生能源驱动的经济模式的过程中，我们的供应商可能因气候变化政策、可再生能源转型等的影响导致成本上升，如用于建造我们的房产的钢铁、铝、铜、水泥等材料成本可能会更高，从而间接导致我们的成本提高。 During the transition to an economic model powered by renewable energy, our suppliers may experience higher costs due to the impact of climate-related policies, the transition to renewable energy, etc. For example, the cost of materials such as steel, aluminum, copper and cement used to build our properties may be higher, which indirectly leads to higher costs for us.</li> </ul>	上游 Upstream	中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>为了缓解此类风险，我们寻求受气候变化影响较低的供应商，如使用替代能源或评估使用替代原材料。 To mitigate such risks, we seek suppliers that are less exposed to climate change, such as those using alternative energy sources or evaluating the use of alternative raw materials.</li> <li>针对我们的能源供应商，我们以合作或协议等形式探索价格优势。 For our energy suppliers, we explore price advantages by means of cooperation or agreements.</li> <li>我们逐步与可再生能源供应商签订购电协议，保障能源供应并稳定价格。 We have signed power purchase agreements with renewable energy suppliers progressively to secure energy supply and stabilize prices.</li> </ul>
声誉 Reputational	<ul style="list-style-type: none"> <li>利益相关方对世纪互联的负面看法，包括但不限于未能及时识别法律法规、在应对气候变化方面的不作为或应对迟缓、不良的企业行为表现，包括报告内容与实际行动不一致等，均会损害集团的声誉，影响集团收益、机构评级结果和公众信誉，进而影响长期发展。 Stakeholders' negative perceptions of VNET include but are not limited to failure to identify laws and regulations in a timely manner; inaction or delayed response to climate change; and bad corporate conduct, including inconsistencies between reported and actual actions. These perceptions can lead to damage in reputation, affect the income, agency ratings and public reputation. This outcome can thus hinder the long-term development of the Group.</li> </ul>	运营 Operation	中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>我们全面管理各项 ESG 风险，建立有效的治理架构定期评估气候变化相关事宜对集团声誉的影响，并持续提升我们在可持续发展方面的信息披露透明度。 We perform comprehensive management on all ESG risks and establish an effective governance structure to regularly assess the impact of climate change-related issues on the Group's reputation, and continuously improve the transparency of our sustainability disclosures.</li> </ul>



数据中心的低碳发展将是推动集团整体可持续发展的重要途径。在国家及行业低碳经济转型的过程中，我们希望把握能源革命和市场变革所带来的历史性机遇，为应对气候风险提供新型基础设施绿色方案。

The low-carbon development of data centers will be an important driving force to promote the Group's sustainable development. We hope to seize the historic opportunities presented by the energy revolution and market shifts as the nation and industry transition to a low-carbon economy, providing a new green infrastructure solution to respond to climate risks.

机遇类型 Opportunity Type	机遇描述 Opportunity Description	影响环节 Impact Segment	影响周期 Impact Cycle	应对策略 Countermeasures
可再生能源 Renewable energy	<ul style="list-style-type: none"> <li>过渡到低排放和零排放能源并投资于新的可再生能源解决方案从长期来看有可能降低我们的运营费用，并可能减少数据中心未来在碳法规、费用或税收方面的潜在支出。 Transitioning to low- and zero-emission energy sources and investing in new renewable energy solutions will potentially lower our operating expenses in the long run and reduce the exposure of data centers to possible risks in carbon-related regulations, fees or taxes.</li> <li>我们有机会通过为客户开发可再生产品和解决方案来增加收入。 We have the opportunity to increase our revenue by developing renewable products and solutions for our customers.</li> </ul>	运营 Operation 下游 Downstream	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>通过可再生能源采购、合作及相关技术研发与应用持续提高可再生能源占比，并制定可再生能源应用解决方案，以经济高效地实现我们的可再生能源目标。 Continuously increase the proportion of renewable energy use through procurement, cooperation and related technology R&amp;D and application, and developing renewable energy solutions to realize our renewable energy targets and minimize carbon emissions in a cost-effective way.</li> </ul>
能源效率 Energy efficiency	<ul style="list-style-type: none"> <li>数据中心高效制冷、先进通风、余热利用、智能化用能控制等技术水平的不断进步，可以降低我们数据中心的 PUE 及运营成本。 The continuous advancement of technologies such as high-efficiency cooling, advanced ventilation, waste heat reuse and intelligent energy consumption control in data centers can reduce the PUE and operating costs of our data centers.</li> </ul>	运营 Operation	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>我们研发并应用智能化管理平台及节能技术，实现数据中心高效运维及能效提升。 We develop and apply intelligent management platforms and energy-saving technologies to achieve efficient data center operation and maintenance and energy efficiency improvement.</li> <li>我们专注于监测、识别能效提升项目的效果，跟踪由此产生的绩效和成本改进。 We focus on monitoring and identifying the impact of energy efficiency optimization projects, and keep track of the performance and cost optimization.</li> <li>更多我们 2023 年在节能技术研发与应用方面的行动，请参见：可持续运营。 For more information about our actions in R&amp;D and the application of energy-saving technologies in 2023, please refer to: Sustainable Operations.</li> </ul>
产品与服务 Products and services	<ul style="list-style-type: none"> <li>开发可持续数据中心并提供低碳，乃至零碳产品及服务是我们未来提高市场竞争力的重要方向。通过为客户提供可再生能源和可持续发展解决方案，支持客户可持续发展，这将成为我们吸引及保留客户的重要途径。 Developing sustainable data centers and providing low- and zero-carbon products and services are crucial to improving our market competitiveness in the future. Supporting our customers in sustainable development by providing renewable energy and sustainable development solutions, which will become a critical path to attract and retain our customers.</li> </ul>	运营 Operation 下游 Downstream	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>我们在低碳方面持续投入，提供满足客户需求的低碳产品与服务。 We continue to increase the investment in low-carbon development and provide low-carbon products and services that meet our customer needs.</li> <li>我们建立智航平台，提供“集中智能监控”等流程智能化控制管理系统，同时应用各类节能技术，实现数据中心的高效运维管理。 We have established the Data Center Infrastructure Management system to provide intelligent control and management systems for processes, such as "centralized intelligent monitoring", and apply various energy-saving technologies to achieve efficient operation and maintenance management of data centers.</li> <li>更多我们 2023 年在低碳产品与服务方面的行动。请参见：绿色数据中心全生命周期建设、可持续运营。 For more information about our actions on low carbon products and services in 2023, please refer to: Full-Lifecycle Construction of Green Data Centers, Sustainable Operations.</li> </ul>
市场 Market	<ul style="list-style-type: none"> <li>我们多元化的产品组合使我们有机会可以利用广泛的公用事业激励政策、可再生能源和低碳产品，与此相关的低碳技术投资正在为集团带来回报，并为我们吸引更多的投资者和客户，以经济高效地为我们的业务增长提供资金。 Our diversified product portfolio enables us to leverage a wide range of public utility incentives, and renewable energy and low-carbon products. Meanwhile, the associated low carbon technology investments are paying off and attracting more investors to sponsor our business growth in a cost-effective way.</li> </ul>	运营 Operation 下游 Downstream	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>我们积极拥抱算力基础设施创新，推进以绿色低碳、经济高效、柔性灵活驱动为特性的新型电力系统开发与应用。 We actively embrace computing infrastructure innovation and promote the development and application of new power systems characterized by green, low-carbon, cost-effective, flexible and nimble drives.</li> <li>我们研发与应用氟泵一体机、液冷冷却技术、余热回收技术、“深寒”系统等系列节能减碳技术。 We have developed and applied a series of energy-saving and carbon-reducing technologies such as fluorine pump, liquid cooling technology, waste heat recovery technology and "Shen-han" cooling solution.</li> <li>我们积极评估发行绿色债券的可行性，获得的资金将用于设计、建设和运营我们的可持续项目。 We actively evaluate the feasibility of issuing green bonds and will invest the funds raised into designing, building and operating our sustainability projects.</li> </ul>
适应力 Resilience	<ul style="list-style-type: none"> <li>客户依靠我们提供稳定的数据中心服务来确保数据隐私、安全和业务连续性。 Our customers rely on our stable data centers to ensure their data privacy, security and business continuity.</li> </ul>	运营 Operation 下游 Downstream	短期 Short-term 中期 Mid-term 长期 Long-term	<ul style="list-style-type: none"> <li>通过选址和气候变化应对预案、保险、绿色建筑设计、高效运维以及数据隐私、网络安全和物理安全实践，我们持续提高对气候变化的适应力，进而提供稳定优质的数据中心服务，以进一步增强我们的市场竞争力。 Through site selection, climate change response plans, insurance, green building design, efficient operation and maintenance, as well as practices in data privacy, cybersecurity and physical security, we continue to improve our resilience to climate change and further enhance our market competitiveness by providing stable and high-quality data center services.</li> <li>更多我们 2023 年在适应力方面的行动，请参见：绿色数据中心全生命周期建设、信息安全及数据隐私。 For more information about our actions in enhancing resilience in 2023, please refer to: Full-Lifecycle Construction of Green Data Centers, Information Security and Data Privacy.</li> </ul>



# 风险管理

## Risk Management

世纪互联建立气候风险评估和管理流程机制。我们通过分析集团现有业务的实体风险和过渡风险，制定气候风险识别、评估与应对的风险管理流程，确定风险控制及应对方案。

VNET has established a mechanism for climate risk evaluations and management processes. We conduct analyses to assess the physical and transition risks associated with the Group's current business operations to identify, evaluate and address climate change risks, and determine risk controls and response plans.

我们结合集团业务现状、行业政策及气候变化情景等考虑因素，识别并筛选可能对集团产生影响的实体风险与过渡风险；  
We identify and screen physical and transition risks that may affect the Group, combining considerations such as the Group's existing business, industrial policies and climate change scenarios;

### 气候风险识别 Climate risk identification

我们选择合适的气候情景开展情景分析，多维度评估气候风险和机遇的潜在影响，识别出对集团业务有实质性影响的气候相关实体风险与过渡风险；  
We conduct scenario analyses based on appropriate climate scenarios, and evaluate the potential impacts of climate change risks and opportunities across various dimensions. This allows us to identify climate-related physical and transition risks that have a material impact on the Group's business;

### 气候风险评估 Climate risk evaluation

我们根据气候变化对业务造成的影响，结合各利益相关方对集团气候变化的期待，筛选重点气候风险；  
We screen out significant climate change risks based on the impact of climate change on business, while considering stakeholders' expectations of the Group's response to climate change;

### 气候风险排序 Climate risk prioritization

针对评估识别出的重大气候风险，我们制定可行的气候变化应对措施。我们将持续拓展气候风险相关内外部沟通与合作，并定期更新对气候风险和机遇影响与应对举措有效性的评估；  
We develop feasible solutions to address climate change for major climate risks that we have identified. We will continue to expand internal and external communications and cooperation agreements related to climate change risks, and regularly update assessments on the impacts of climate change risks and opportunities, as well as the effectiveness of our countermeasures.

### 气候风险应对 Climate change response

# 指标和目标

## Metrics and Targets

面对全球气候变化挑战，作为负责任的 IT 基础设施服务行业领先企业，世纪互联制定了充满雄心的减碳目标，推动集团低碳转型。

As a responsible, leading IT infrastructure service provider, VNET is facing the global challenge of climate change by setting ambitious carbon reduction targets to advance the Group's low-carbon transition.

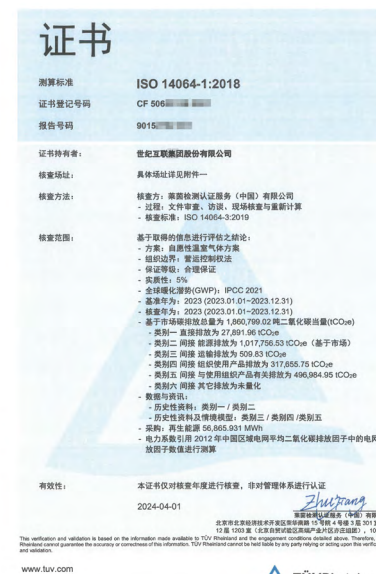
世纪互联 ESG 目标：  
VNET's ESG Targets:

- 不晚于 2030 年，实现运营层面范围 1 和范围 2 碳中和  
By 2030, achieving operational carbon neutrality in Scope 1 and Scope 2 emissions
- 不晚于 2030 年，实现运营层面 100% 可再生能源使用  
By 2030, achieving 100% renewable energy use in operations

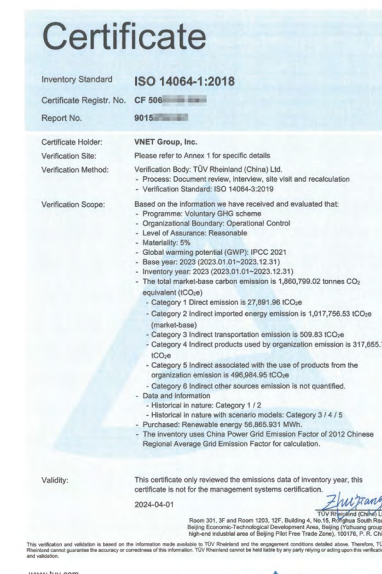


世纪互联每年开展组织边界和报告边界内的范围 1、范围 2 及范围 3 的温室气体排放量盘查，并聘请有资质的第三方独立机构，依据 ISO 14064-3:2019 《温室气体声明核查和审定规范及指南》进行核查。更多有关温室气体排放的数据和信息，详见附录“2023 年度关键绩效指标表”。

VNET conducts a greenhouse gas emission inventory every year within organizational and reporting boundaries, covering Scope 1, Scope 2 and Scope 3 greenhouse gas emissions. We engage a qualified independent third-party agency to verify and validate our emissions in accordance with the ISO 14064-3:2019 *Specification with Guidance for the Verification and Validation of Greenhouse Gas Statements*. More data and information on greenhouse gas emissions can be found in the appendix "2023 Key Performance Indicators".



世纪互联集团股份有限公司  
温室气体核查证书



GHG Emissions Verification  
Certificate of VNET Group, Inc.



## 绿色数据中心 全生命周期建设

世纪互联持续推进数据中心高效、节能、低碳、循环的绿色发展道路，努力提升数据中心从选址、设计、建设、运营等全生命周期的绿色管理能力以减少碳足迹。本年度，我们稳定运行的数据中心全年 PUE 平均值为 1.29。同时，集团主营业务所涉及的多场所已通过环境管理体系（ISO 14001）认证。

## Full-Lifecycle Construction of Green Data Centers

VNET strives to promote a green development path that is "high-efficient, energy-saving, low-carbon and circular" for its data centers. We also focus on improving our green management capabilities throughout the full lifecycle of site selection, design, construction and operation of data centers to reduce our carbon footprint. This year, the average annual PUE of our data centers with stabilized operations was 1.29. Meanwhile, a number of sites involved in the Group's main business have been certified to the Environmental Management Systems (ISO 14001).

### 项目选址

在数据中心选址阶段，我们根据《中华人民共和国环境影响评价法》《建设项目环境保护管理条例》等有关规定依法进行环境影响评价，评估建设项目在拟选址区域的生态环境影响，并制定相关防治及保护措施。

我们严格遵守《联合国生物多样性公约》等生物多样性有关的法规及原则，评估相关风险并尽最大可能控制我们的运营足迹对生物多样性的影响。目前，本集团运营所在地没有位于或邻近于保护区和保护区外生物多样性丰富的区域。

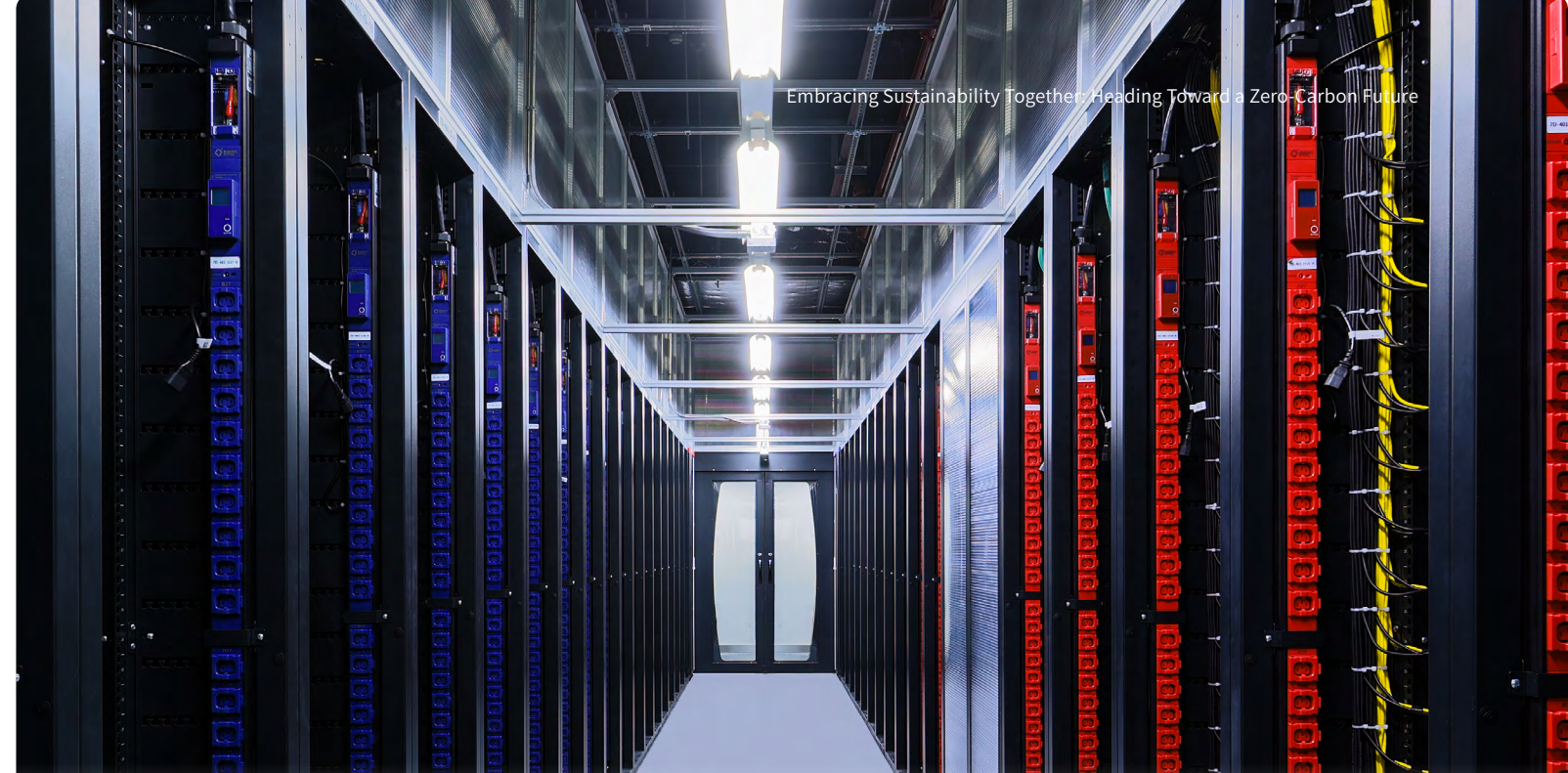
可再生能源的可及性是我们项目选址过程中的重要评估项之一，我们在数据中心布局规划中考虑周边是否有可使用的可再生能源，以期提升可再生能源使用比例。

### Site Selection

During site selection of data centers, we carry out environmental impact assessments to evaluate ecological environmental impacts of the construction project in the proposed site selection area, and formulate relevant prevention, control and protection measures in accordance with the *Law of the People's Republic of China on Environmental Impact Assessment, Regulations on the Administration of Construction Project Environmental Protection* and other relevant regulations.

We strictly abide by the Convention on *Biological Diversity of the United Nations* and other regulations and principles related to biological diversity, assess relevant risks, and strive to mitigate the impact of our operational footprint on biological diversity on our best effort. There are currently no sites where the Group operates that are located in or adjacent to protected areas and areas of high biodiversity outside protected areas.

The accessibility of renewable energy is one of the important evaluation criteria during our site selection process. We consider the availability of renewable energy around our data centers when planning their layout, with a goal to increase the use of renewable energy.



Embracing Sustainability Together, Heading Toward a Zero-Carbon Future

### 规划设计

我们严格遵循《数据中心设计规范》（GB 50174-2017）要求，并对标国际数据中心可靠性和弹性的行业现行设计标准 Uptime Tier III Ready，开展数据中心规划设计工作，在保证算力的基础上充分考虑数据中心的绿色属性。

数据中心的水资源使用效率是衡量数据中心绿色化程度的关键性能指标。我们高度关注项目运营所在地的水资源供给能力，对当地当前和未来的水资源情况进行分析和评估，并通过与全国数据中心的用水数据历史数据进行对比，为新建数据中心提供信息参考，从前端规划设计减少水资源消耗，增强设施运行的可靠性和复原力。对可能面临水资源短缺风险的地区，我们会充分评估水资源情况，采用节水规划设计方案，比如使用无水或节水暖通架构设计等以做好应对无水或缺水情况的准备。

在数据中心建筑形态设计上，我们采取更精巧的建筑结构或设计以提升能效。在设备布局上，我们充分考虑绿色节能设备或技术等的应用，不断优化设备排布以提升运营阶段效率。

### Planning & Design

We rigorously adhere to the requirements of the *Code for Design of Data Centers* (GB 50174-2017) and benchmark our procedures against the reliability and flexibility standards of international data centers as per the Uptime Tier-Ready III certification. Additionally, we conduct data center planning and design work, ensuring computational power while fully considering the green attributes of data centers.

The efficiency of water use in data centers is a key performance indicator to measure the green nature of our data centers. We pay great attention to the water resources supply capacity of the project operation location, evaluate the current and future water resources situation of the local area, and compare them with historical water use data from nationwide data centers as a reference for new data centers. In doing so, we aim to reduce water consumption from the front-end planning and design, and enhance the reliability and resilience of facility operations. For areas that may be at risk of water scarcity, we will full assess the situation of water resources and develop water-saving planning and design schemes such as the use of waterless or water-saving heating and ventilation structure architecture design to prepare for situations of water scarcity or absence.

In terms of the architectural design of data centers, we adopt more sophisticated structures or designs to improve energy efficiency. By considering the layout of equipment, we maximize the application of green energy-saving equipment and technologies, and continuously optimize the layout of equipment to enhance the efficiency of our operations.



<p>IT 设备 IT equipment</p>	<ul style="list-style-type: none"> <li>我们合理部署 IT 基础设施，提高机房能效管理水平，降低单位算力的能源消耗。 Achieve reasonable IT infrastructure deployment to improve energy efficiency management in computer rooms to achieve lower carbon emissions per unit of computational power.</li> <li>我们为新建数据中心选择高效 IT 设备，并逐步淘汰现有数据中心的低能效设备。 Select energy-efficient IT equipment for newly constructed data centers and phase out high energy consumption equipment in existing data centers.</li> <li>积极应用 IT 设备节能技术，以提高能效，减少能源浪费。 Actively apply energy-saving technologies for IT equipment to improve energy efficiency and minimize energy waste.</li> </ul>
<p>制冷系统 Cooling system</p>	<ul style="list-style-type: none"> <li>我们通过优化气流组织设计、使用高效节能机组、智能控温系统以及空调 AI 能效管理技术等方法，提高制冷系统运行效率，帮助降低机房 PUE，减少温室气体排放。 Improve the operation efficiency of the cooling system by optimizing the airflow organization design, using high-efficiency and energy-saving units, smart temperature control system, and air-conditioning AI energy efficiency management technology, helping to reduce the PUE of the computer room and GHG emissions.</li> <li>对于数据中心设备运营产生的热量，我们通过余热回收进行二次利用，避免能源浪费。 Recover the waste heat to avoid energy waste for the heat generated from the equipment operation in data centers.</li> </ul>
<p>供配电系统 Power supply and distribution system</p>	<ul style="list-style-type: none"> <li>我们通过优化配电系统架构，使用高效节能配电设备，减少配电系统电力损耗，提高能源传输效率。 Optimize the structure of power distribution systems and use high-efficiency and energy-saving distribution equipment to reduce the power loss and improve the efficiency of energy transmission.</li> <li>我们利用业内领先的动态环境监控系统，对电力系统的设备进行实时监控，及时告警，避免因设备故障引起的能源浪费。 Use the industry-leading dynamic environment monitoring system to conduct real-time monitoring of equipment in the power system, issue timely warnings and avoid energy waste caused by equipment failures.</li> </ul>



### 案例：太仓基地冷却技术重大突破

#### Case : The great breakthrough in cooling technology at Taicang Site

2023 年，世纪互联太仓基地获得 W.Media “数据中心客户交付团队大奖”。太仓基地是目前世纪互联在长三角地区单体规模最大的数据中心集群，同时是国内目前最大的冷板式液冷数据中心集群。

In 2023, VNET's Taicang Site received W.Media's "Data Center Client Delivery Team Award". Taicang Site is currently VNET's largest single data center cluster in the Yangtze River Delta region and the largest cold plate liquid cooling data center cluster in China.

依托多年行业深耕与技术迭代，我们在太仓基地的园区规划与建筑、暖通、给排水、供配电、可再生能源与储能、设施运维六大环节设计并应用了多种绿色低碳技术，可大幅度降低 PUE 至同地域行业领先水平，极大提高数据中心运营效率。

Leveraging our many years of engagement in this industry and technological upgrades, we applied a variety of green low-carbon technologies to the designs of six modules of Taicang Site. These included planning and construction, heating and ventilation, water supply and drainage, power supply and distribution, renewable energy and energy storage, as well as equipment maintenance and operations. These technologies allow us to greatly reduce PUE to the leading industrial level in the same region, leading to a substantial increase in the operational efficiency of data centers.

在暖通技术方面，我们实现了同类型数据中心冷却技术的重大突破，推出由润溪液冷系统、冰河相变系统及广寒间冷系统组成的业内首个第三代全新架构的风、液组合高强冷却解决方案。

In terms of heating and ventilation technologies, we made a great breakthrough in the cooling technology tailored for data centers of the same type. Introducing our first third-generation new architecture wind-liquid combined high-intensity cooling solution, we combined the Runxi liquid cooling system, Binghe phase change system, and Guanghan indirect refrigeration system to achieve optimal performance.

- 润溪液冷系统具有需求高匹配、多工况适配、精准强冷却、极高节能性及全域适用性等特点，能显著提高能源利用效率，降低能耗，可实现系统年平均 PUE  $\leq 1.15$ 。

The Runxi liquid cooling system is versatile, catering to various requirements across diverse conditions. It demonstrates accurate and enhanced cooling performance, while maintaining extremely high energy efficiency and a diverse range of applications. The system can significantly improve energy use efficiency, reduce energy consumption, and achieve an annual average PUE of less than or equal to 1.15.

- 冰河相变系统作为世纪互联首创并大规模应用的系统，具有广域适用、分布灵活、节能低碳、产出率高及冷源分散等特点，是适用于丰水低纬、地小楼高的冷却方案，可实现系统年平均 PUE  $\leq 1.2$ 。

The Binghe phase change system has been successfully implemented in large-scale applications, which is first developed by VNET. Renowned for its diverse range of applications, flexible distribution, energy-saving and low-carbon technologies, high output capacity, and dispersed cold sources, this system is particularly well-suited for tall buildings in regions with abundant water resources at low latitudes. The system can achieve an annual average PUE of less than or equal to 1.2.

- 广寒间冷系统具有全域适用、高产率、强可维护、低能耗率等特点，充分利用水的蒸发吸热，对空气进行冷却。

The Guanghan indirect refrigeration system features a full range of applications, high output capacity, good maintainability, and low energy consumption. It cools air based on the principle of evaporative cooling.



## 项目建设

### Project Construction

在数据中心建设阶段，我们重点关注如何减低环境影响、防控环境污染。我们推行数据中心预制化，将数据中心建设分为制冷、IT、供电等多个功能模块，在项目现场施工前完成功能模块的组装和集成，以缩短施工现场项目工期，减少原材料用量，同时避免建筑垃圾的产生和施工浪费。我们已在昆山等地的数据中心应用预制化技术，实现了项目建设交付简单、质量可控以及低碳环保的效果。在现场施工过程中，我们遵循节水节电的原则，施工期间采用低能耗施工照明设施，并采用雨水收集装置实现施工用水二次利用。我们建立施工现场环境治理体系，并采取多种措施防治施工期间产生的扬尘、噪声、废水等对环境的影响。

During the construction of data centers, we make efforts to minimize the environmental impact, prevent and control environmental pollution. We have implemented data center prefabrication by dividing data center construction into multiple functional modules such as cooling, IT, power supply, etc., which are assembled and integrated prior to the construction of the project site, in order to shorten the project duration at the construction site, reduce the amount of raw materials used, and avoid the generation of construction waste and construction waste. We have applied prefabrication technology to data centers in Kunshan and other locations, achieving simple project delivery, controlled quality, and low-carbon environmental protection. During on-site construction, we follow the principle of saving water and electricity by adopting low-energy construction lighting facilities during construction and rainwater collection devices to realize the secondary use of construction water. We establish an environmental management system for the construction site and adopt various measures to prevent and govern environmental influence generated during construction, such as dust, noise and wastewater.

#### 扬尘管理 Dust management

- 施工现场实施封闭式围挡管理，设置扬尘防治责任人及现场保洁员，设置洒水车、水雾喷淋装置进行降尘。  
The closed enclosure management shall be implemented on the construction site. The construction site shall be equipped with the personnel responsible for dust prevention and control, on-site cleaner, and sprinkler and water mist spraying devices for dust reduction.
- 出入口使用洗车池，所有运输道路均按需进行硬化或绿化。  
The entrances and exits use car wash tanks, hardening and greening shall be conducted at all the roads for transportation.
- 针对施工现场粉尘类建筑材料、建筑垃圾等，要求仓库密闭存放或进行苫盖。  
The dust-type construction materials and construction waste on site shall be stored in closed warehouses or covered.
- 制订空气污染应急预案，发布污染预警时及时开启应急响应。  
Air pollution emergency plan should be in place and the emergency response should be initiated promptly when pollution warning is issued.

#### 噪声管理 Noise management

- 现场设备优先选用低噪设备或设置消声装置，并在安装过程中采取降噪措施。  
Preference shall be given to low-noise equipment or muffler equipment in the construction site, and noise reduction measures shall be adopted during the installation process.
- 加强作业效率，减少噪声设备运行时间。  
Improve operation efficiency and reduce the operation time of noise-making equipment.
- 严格按照国家及项目所在地噪声管理规定中规定的时间施工。  
Construction should be conducted in strict accordance with the timetable stipulated by the national and local noise management regulations.

#### 排放物管理 Emission management

- 对于生活及生产废水，单独设置收集管道和收集池，做到雨污分流，经预处理后，进行回用或统一排入市政污水处理管网。  
For domestic sewage and production wastewater, separate collection pipelines and collection tanks are placed, and the diversion of rain and sewage is achieved. After pretreatment, the sewage and wastewater shall be reused or discharged into municipal sewage treatment pipes.
- 对于建筑垃圾，通过技术改进、加强管理及循环利用等方式减少建筑垃圾产生，对于实际产生的建筑垃圾，设置垃圾集中堆放点，聘请有资质的第三方合规处置，并送至有资质的废品回收单位。  
For construction waste, the generation should be reduced through such means as technical improvements, strengthening management and recycling. For the construction waste already generated, a centralized waste storage site should be set up, a qualified third parties should be hired for compliance disposal. And the waste should be sent to a qualified and designated waste recycling unit.

在建筑材料选择过程中，我们优先选择耐久性好、有助于建筑节能、可以循环利用的材料。例如，我们通过选择难燃的保温层材料，降低数据中心建筑热损失，减少制冷制热产生的能源消耗。同时，我们尽可能通过本地化采购减少运输过程中产生的碳排放。

When selecting building materials, we prioritize materials that are durable, energy-saving, and recyclable. For example, we choose non-flammable insulation materials to minimize heat loss in data center buildings, thereby reducing energy consumption for cooling and heating purposes. We also try to reduce the carbon emissions caused by transportation through local procurement.



## 可持续运营 Sustainable Operations

世纪互联致力于推动企业的可持续运营，在发力能源转型、提高运营效率方面不断探索，以践行自身减碳目标。

VNET is committed to promoting sustainable operations, and continuously explores new energy transition methods and operational efficiency improvements to fulfill its carbon reduction goals.

## 发力能源转型 Empowering the Energy Transition

以绿色低碳、经济高效、柔性灵活驱动的新型电力系统，将是未来算力基础设施的核心竞争力和生命线，这也高度契合世纪互联第二个 25 年创业的使命和奋斗目标：让绿色直流从数据中心走向千家万户。世纪互联积极响应国家加快建设以新能源为主体的新型电力系统的目标，以及加强电力需求侧管理的号召，在用电环节实施节约用电、绿色用电、电能替代、智能用电、有序用电，推动电力系统安全降碳、提效降耗，以引领行业能源转型。

A new type of power system driven by green, low-carbon, economically efficient, and flexible capabilities will be the core competitiveness and lifeline of future computing power infrastructure. This is also highly in line with VNET's entrepreneurial mission and goal for the next 25 years: bring green direct-current electricity from data centers to millions of households. VNET is actively responding to the country's goal of accelerating the construction of a new power system based on new energy, as well as the call to strengthen power demand-side management. We implement power conservation, green power consumption, power substitution, intelligent power use, and orderly power use in the power consumption process to promote the safe carbon reduction, efficiency improvement, and consumption reduction of the power system, to lead the energy transformation of the industry.

## 可再生能源投资 Renewable Energy Investments

### 分布式光伏

#### Distributed Photovoltaics

本年度，世纪互联持续开展对分布式可再生能源的探索和应用。

This year, VNET is continually carry out the exploration and application of distributed renewable energy.



### 案例：博兴数据中心屋顶光伏项目

#### Case: Rooftop Photovoltaic Project in the Boxing Data Center

世纪互联北京亦庄博兴数据中心在屋顶安装光伏发电设备，外部光线充足时，太阳能电池板的光电效应将太阳的光能转化为电能，并以余电上网的方式并网发电进行设备供电，减少了亦庄地区电网的负荷，实现了对太阳能和建筑的综合利用，提升了数据中心的绿电使用比例。2023 年，该项目发电量约 21.77 万千瓦时，减少二氧化碳排放量约 192 吨，节省用电成本约 23 万元人民币。

In VNET's Boxing Data Center in Yizhuang, Beijing, photovoltaic power generation equipment was installed on rooftops. With ample sunlight, solar panels employ the photoelectric effect to convert the sun's rays into electricity, which is then connected to the grid for power generation and equipment supply through surplus power grid connection, which reduces the load on the Yizhuang area's power grid, thereby integrating solar energy onto buildings and increasing the proportion of green energy usage in data centers. In 2023, the project achieved a power generation capacity of about 217,700 kWh, reducing about 192 tonnes of CO<sub>2</sub> emissions and saving around RMB 230,000 in electricity cost.

217,700 千瓦时  
kWh

光伏发电量

Photovoltaic electricity generation

192 吨  
tonnes

减少二氧化碳排放量

Reduce CO<sub>2</sub> emissions

230,000 元人民币  
RMB

节省用电成本

Save electricity cost



博兴数据中心光伏项目

Photovoltaic Project in the Boxing Data Center



储能技术

Energy Storage Technologies

新型储能技术是构建新型电力系统的基础装备。配套储能设施的荷储融合型数据中心为数据中心的绿色能源转型提供了新的路径，有助于实现绿色供电和绿色算力之间的经济性平衡。为响应国家关于加快建设新型能源体系，推进“源网荷储”一体化的号召，世纪互联积极探索可再生能源与储能融合发展技术，并已在部分数据中心取得相关进展。

New energy storage technologies are the fundamental components for constructing new power systems. The shift toward load-storage integrated data centers which are equipped with supporting energy storage facilities provides a new pathway to the transition to green energy, and helps us to achieve an economic balance between green power supply and green computing power. In response to the national appeal for accelerating the construction of a new energy system and promoting the integration of "source-grid-load-storage", VNET is actively exploring technologies to achieve the integrated development of renewable energy and energy storage, and has made great strides in some data centers.



案例：佛山数据中心“光伏+储能”项目

Case: "Photovoltaic + energy storage" technology in Foshan Data Center

作为我国首个将规模化新型储能技术应用于数据中心的项目，世纪互联佛山智慧城市数据中心采用“削峰填谷”的模式，有效提升电力系统的可再生能源消纳能力。同时，该数据中心配置 64kW 屋顶光伏，通过分布式光伏提升了数据中心可再生能源自给率。2023 年度，该项目光伏发电量 5.48 万千瓦时，减少二氧化碳排放量约 29 吨，通过“光伏+储能”技术合计节省用电成本约 48 万元人民币。

As the first project in China to apply large-scale new energy storage technology to data centers, the VNET Foshan Smart City Data Center adopts a "peak load shifting" model to effectively enhance the renewable energy consumption capacity of the power system. In addition, the data center is equipped with 64 kW distributed rooftop photovoltaic panels, which have improved the data center's renewable energy self-sufficiency rate. In 2023, this project achieved a power generation capacity of 54,800 kWh, reducing about 29 tonnes of CO<sub>2</sub> emission. The total savings in electricity costs through the "photovoltaic + energy storage" technology were approximately RMB 480,000.

**54,800** 千瓦时  
kWh  
光伏发电量  
Photovoltaic electricity generation

**29** 吨  
tonnes  
减少二氧化碳排放量  
Reduce CO<sub>2</sub> emissions

**480,000** 元人民币  
RMB  
通过“光伏+储能”技术合计节省用电成本  
Save electricity costs through the  
"photovoltaic + energy storage" technology



佛山数据中心“光伏+储能”项目  
"Photovoltaic + energy storage" technology in  
Foshan Data Center



案例：乌兰察布数据中心“源网荷储”一体化新型电力系统项目

Case: New power system that integrates "source-grid-load-storage" in Ulanqab Data Center

世纪互联乌兰察布数据中心规划设计“源网荷储”一体化新型电力系统项目，拟在项目周边建设超十万千瓦级新能源风光电厂，预计年发绿电量达到数亿千瓦时。项目计划利用风光互补技术，同时配套规模化储能与绿色算力智慧运营平台，实现“源网荷储”协同控制以及电力算力统一调度，从而为数据中心提供高比例绿电。

The VNET Ulanqab Data Center is undertaking a project to construct a new power system that integrates "source-grid-load-storage". The Center plans to build a wind-solar power plant with a capacity exceeding 100,000 kW. It is anticipated that this plant will generate hundreds of millions of kilowatt-hours of green power annually. The project aims to achieve the coordinated control of "source-grid-load-storage", and the unified scheduling of power and computing resources. It will do this by using wind-solar hybrid power generation technology, and will be supported by a large-scale energy storage and green computing power intelligent operation platform. By doing so, this project will increase the proportion of green electricity used in the data center.

氢能研究

Hydrogen Energy Research

世纪互联持续加强氢能应用于数据中心的可行性研究，推动氢能技术的发展与应用。我们开展制氢、储氢、输氢等模块技术研究，开展固定式氢燃料电池中试预研项目研究，对氢能发电站建设开展预研工作，并编制《数据中心氢长时储能发展白皮书》。

VNET continues to conduct feasibility studies on the application of hydrogen energy in data centers to promote the development and application of hydrogen energy technologies. We have carried out technical research on hydrogen production, storage, transmission, etc., launched a pilot test and pre-research project on stationary hydrogen fuel cells, and conducted pre-study on the construction of hydrogen power stations. We have also compiled the *White Paper on the Development of Hydrogen Long-Term Energy Storage for Data Centers*.

绿电交易

Green Power Trading

世纪互联积极参与多地区绿色电力交易，本年度购买绿电约 5,690 万千瓦时。此外，与中广核太阳能（深圳）有限公司签订 2023 年绿电购买协议（约 400 万千瓦时），其中包含五年约 5 亿千瓦时的绿电供给保障条款。

VNET is actively participating in green power trading in many regions. This year, we purchased about 56.90 million kWh of green electricity. In addition, we signed the 2023 Green Power Purchase Agreement (approximately 4 million kWh) with CGN Solar (Shenzhen) Co., Ltd., which contains a five-year green power supply guarantee clause of providing about 500 million kWh.





## 合作交流

### Cooperation and Communication

世纪互联携手合作伙伴，通过开展算力与能源相融合的系列前沿项目，全面推动产业链绿色低碳转型。

VNET works with partners to promote the green and low-carbon transition of the industrial chain by undertaking a series of cutting-edge projects that integrate computing power and energy.



#### 案例：世纪互联与合作伙伴联合举办“中国绿色直流数据中心百人会（筹）”

Case: VNET co-organized "Green Direct-Current Data Center (GDCC) 100" with its partners

2023年11月，由中国电气装备集团绿能公司、清华大学能源互联网创新研究院、世纪互联联合举办的“中国绿色直流数据中心百人会（筹）”（GDCC100）在北京举行。GDCC100作为创新联合体平台，以推动绿色直流数据中心发展为目标指引，这高度契合世纪互联的下一个25年使命：让绿色直流从数据中心走向千家万户。GDCC100从民间智库、核心装备产业促进以及基于算力负荷的“源网荷储”联合等三个方面推动新一代IDC产业的“激进式”创新。在会上，世纪互联与众多嘉宾共同发起“SPEAR”全球协同创新倡议，通过从高载能用户侧推动“源网荷储”四联动的新型电力系统，将数字新基建转变为新型能源系统的重要柔性资源。

In November 2023, the GDCC 100 was jointly held in Beijing by China Electrical Equipment Group Green Energy Technology Co., Ltd., Energy Internet Research Institute Tsinghua University, and VNET. Functioning as an innovative consortium platform, the GDCC 100 aims to promote the development of the GDCC, which aligns with VNET's next 25-year mission: bring green direct-current electricity from data centers to millions of households. This collaboration enables both parties to work together to promote the "radical" innovation of the new-generation IDC industry from three dimensions: non-governmental think tanks, the promotion of the core equipment industry, and the integration of "source-grid-load-storage" based on computing power load. At the GDCC 100, VNET jointly launched the "SPEAR" Global Collaborative Innovation Initiative with many guests attending the conference. The initiative aimed to transform new digital infrastructure into important flexible resources for new energy systems through the new power system, which integrates "source-grid-load-storage" from the high-energy user side.



#### 案例：世纪互联与合作伙伴联合举办“首届超互联新算力产业暨第三届中国IDC行业DISCOVERY大会”

Case: VNET cooperated with partners on the "First Hyper-Connected New Computing Power Industry and the 3<sup>rd</sup> DISCOVERY Conference for China's IDC Industry"

为了进一步助推国家新一代数字基础设施发展，深化超互联新算力的落地实践，2023年4月，世纪互联结合自身深耕数据中心行业近30年的优势，与产业链生态合作伙伴签订战略合作。世纪互联与华为数字能源以数据中心为载体，在数据中心基础设施、“源网荷储”、低碳建设等方面达成战略合作。基于工业元宇宙愿景，我们与中江数建在智慧园区、智慧楼宇场景应用与实施联合解决方案落地方面展开深入合作，共同开发一系列智能化产品。我们与联想新算力计划发挥双方各自优势，在算力领域共建“智能算力中心”。

To propel the advancement of the national next-generation digital infrastructure and facilitate the realization of hyper-connected computing power, VNET signed strategic cooperation agreements with ecological partners along the industrial chain in April 2023, leveraging its 30 years of experience in data centers. VNET achieved a strategic cooperation with Huawei Digital Power Technologies Co., Ltd., focusing on the infrastructure of data centers, the integration of "source-grid-load-storage", and the low-carbon construction. Embracing the vision of advancing the industrial metaverse, we established in-depth collaborations with Jiangsu Zhongjiang Digital Construction Technology Co., Ltd. to develop a series of intelligent products that can facilitate the implementation of joint solutions for the application of intelligent parks and intelligent building scenarios. We also plan to co-build an "Intelligent Computing Power Center" with Lenovo's new computing power by giving full play to our respective strengths.

## 提高运营效率

### Improving Operation Efficiency

世纪互联坚持建设集约、循环的新型数据中心，致力于全面提升运营效率，以推动数据中心可持续发展。

VNET is striving to build new data centers that are both intensive and circular. We are committed to comprehensively improving the efficiency of our operations to help boost the sustainable development of data centers.

## 能源效率提高

### Improving Energy Efficiency

世纪互联通过规范节能管理制度体系、应用绿色节能技术、搭建智能化平台等方式持续提升数据中心能源与运维效率。我们制定《能源管理制度》等文件以规范并指导数据中心节能降耗、用水及冷却效率提升等工作。集团主营业务所涉及的多场所已通过能源管理体系（ISO 50001）认证。

VNET constantly improves the energy and O&M efficiency of data centers by establishing standard energy-saving management systems, applying green energy-saving technologies and building intelligent platforms. We have formulated the *Energy Management System* and other documents to offer guidance on energy conservation and reducing energy consumption, as well as improving water-use and cooling efficiency in data centers. A number of sites involved in the Group's main business have been certified to the Energy Management Systems (ISO 50001).



**应用绿色节能技术 Applying Green Energy-Saving Technologies**

本年度，我们根据《节能运行指南》，通过优化气流组织、三态模式切换、设备改造更新、加强水处理及清洗等措施对重点数据中心进行节能改造工作。

This year, in accordance with the *Guidelines for Energy-Saving Operations*, we implemented energy-saving measures for key data centers through actions such as optimizing air distribution, three-state mode switching, equipment renovation and replacement, and enhanced water treatment and cleaning.

针对数据中心普遍存在的热源浪费问题，我们采用余热回收工程对余热、废热进行最大限度的回收利用。我们对全国数据中心周边资源进行摸排，开展可行性分析，以推广余热回收在数据中心的规模化应用。同时，我们与第三方公司合作研发，探索新型余热回收技术，提升热量利用效率。

In response to the common problem of heat loss in data centers, we carried out a waste heat recovery project to maximize the recycling of wasted heat. We have surveyed the surrounding resources of data centers nationwide and carried out feasibility studies to promote the large-scale application of waste heat recovery in data centers. In addition, we are cooperating with a third-party company to research and develop new waste heat recovery technologies, thus improving the efficiency of heat utilization.



**案例：余热回收技术合作创新项目**

**Case: Innovative projects of waste heat recovery technologies**

世纪互联积极与外部商业伙伴合作开展创新项目。本年度我们在乌兰察布数据中心与客户联合研发创新型空气源热泵技术，将机房服务器、交换机正常工作所产生的热量通过系统进行回收，再将其输送至数据中心生产运营过程中需要大量热量的柴发机房，以减少冬季柴发机房耗电量。

VNET is actively cooperating with business partners on innovative projects. In this year, we jointly developed the innovative air-source heat technology with customers in the Ulanqab Data Center. This technology recycles the heat generated by the normal operation of servers and switches in the server room, and delivers it to the diesel engine room, where a large amount of heat is required during production and operation processes. This reduces the electricity consumption of diesel engines in winter.

经过运行数据对比分析，安装余热回收机组的柴油缸套会大幅缩短加热时间，同时该余热回收系统蒸发器安装于机房吊顶内热通道，可降低间接蒸发冷却机组回风温度，并有效降低能耗。据折算，该技术单套机组全年可节省电力约9万千瓦时，减少二氧化碳排放量约80吨，可节省经济成本约3.6万元。本项目在节能增效、降低数据中心PUE及提高经济效益方面达成的良好效果，为后续其他数据中心节能减排提供了重要的运行依据与参考价值。

After comparative analysis of operation data, the installation of waste heat recovery unit of diesel engine cylinder liner will significantly shorten the heating time, at the same time, the waste heat recovery system evaporator is installed in the hot channel in the engine room ceiling, which can reduce the return air temperature of the indirect evaporative cooling unit, and effectively reduce energy consumption. According to the conversion, this technology can achieve an annual electricity saving of about 90,000 kWh for a single set of units, reducing about 80 tonnes of CO<sub>2</sub> emissions and saving RMB 36,000 in electricity costs. This project has achieved good results in terms of saving energy and improving efficiency, reducing data centers' PUE and enhancing economic benefits. This has also provided an important basis and insight into subsequent energy saving and emission reduction measures in other data centers.

**90,000** 千瓦时  
kWh

该技术单套机组全年可节省电力

The use of the technology saves electricity for a single unit throughout the year

**80** 吨  
tonnes

减少二氧化碳排放量

Reduce CO<sub>2</sub> emissions

**36,000** 元人民币  
RMB

可节省经济成本

Save electricity cost

**搭建智能化平台 Creating an Intelligent Platform**

世纪互联自主研发的“智航平台”是基于数字孪生技术的数据中心智能化运营解决方案，通过为数据中心提供实时监测分析、精准智控、PUE 预测等基础设施智能运维功能，助力数据中心提升能效管理与运维管理水平，从而实现 PUE 下降、资源利用率提升。

The Data Center Infrastructure Management (DCIM) platform independently developed by VNET is an intelligent operational solution based on the digital twin technology of data centers. The platform provides intelligent O&M features such as real-time monitoring and analysis, accurate intelligent control, and PUE prediction for infrastructure in data centers. In turn, this helps them improve energy efficiency management and O&M management levels, reducing PUEs and enhancing resource utilization rates.

我们不断探索 AI 技术在数据中心的应用，利用 AI 能效管理技术，通过对 BA 系统、动环系统、电力监控系统等历史数据和实时运行数据进行分析与处理，结合深度学习技术建模训练，输出最优的控制策略和参数，指导运维人员进行控制策略的调整，实现对数据中心空调系统的策略优化与实时监测，从而降低制冷系统整体能耗。此外，AI 技术同样被用于预测性维护，以优化巡检和维护策略，从而提升效率，避免故障并延长设备使用寿命。

We consistently investigate the utilization of AI technologies in data centers. We utilize AI energy efficiency management technologies to analyze and process historical data and real-time operational data of the BA system, dynamic environment monitoring system, power monitoring system, and other systems. Modeling and training are conducted using deep learning technology in order to create optimal control strategies and parameters, and guide O&M personnel's adjustments to control strategies. As a result, we can optimize and monitor air conditioning systems in data centers in real time, thus reducing the overall consumption of cooling systems. In addition, AI technologies are also used for predictive maintenance to optimize inspection and maintenance strategies to improve efficiency, avoid breakdowns and extend equipment life.



**案例：三河铭泰绿色数据中心**

**Case: Sanhe Mingtai Green Data Center**

2023 年，世纪互联三河铭泰数据中心入选由工业和信息化部、国家发展改革委等六部委组织评价认定的 2022 年度国家绿色数据中心。三河铭泰数据中心参照 T3 级以上标准设计建设，满足国家 A 级机房认证要求。该数据中心接入“智航平台”，采用 AI 能效管理技术、高温冷冻水、冷热通道封闭和气流组织优化等节能减排措施。通过实际应用测试，AI 能效管理技术的投入使用可以有效降低空调系统的整体能耗，每年约可带来 5% ~ 15% 的能效提升，同时间接减少运维支出，从而降低数据中心的运营成本，对于节能减排、促进经济可持续发展具有重要意义。

In 2023, VNET Sanhe Mingtai Data Center was chosen for the National Green Data Center Award 2022 by six ministries and commissions, including the Ministry of Industry and Information Technology and the National Development and Reform Commission. Sanhe Mingtai Data Center was designed and constructed to meet tier 3 or higher data center standards and the requirements for the national A-level computer room certification. The data center was connected to the DCIM platform and adopted energy-saving and emission reduction measures such as AI energy efficiency management technologies, high-temperature chilled water, closure of hot and cold channels, and air distribution optimizations. Tests in practical applications show that AI energy efficiency management technologies can significantly reduce the overall consumption of air conditioning systems and increase energy efficiency by 5-15% annually. The O&M expenditures and operational costs of data centers also decrease accordingly, which is of great significance for energy conservation, emission reductions, and sustainable economic development.



三河铭泰绿色数据中心鸟瞰图  
Aerial view of Sanhe Mingtai Green Data Center



## 水资源管理 Water Resources Management

世纪互联高度重视对水资源的管理和使用效率，积极采取多种行动对水资源合理利用与管理。我们研发并应用无水冷却技术，积极探索雨水收集回用技术及中水循环使用技术，并持续提升现有水冷系统的用水效率，减少对自然水资源的消耗。

VNET places a high value on the management and usage efficiency of water resources, and multiple actions have been taken to utilize and manage water resources in a reasonable manner. We develop and apply water-free cooling technologies and actively explore rainwater collection and reuse technologies, as well as reclaimed water recycling technologies. We also continuously enhance the water-use efficiency of existing water-cooling systems and reduce the consumption of natural water resources.

世纪互联在北京、廊坊、怀来和乌兰察布等自建园区型项目中，大力推动市政中水的综合利用。在园区内部进行中水处理装置和中水管道系统的规划与设计，保障在项目投产后园区的生产用水可采用中水系统进行循环使用。

VNET promotes the comprehensive utilization of municipal reclaimed water in its self-built parks in Beijing, Langfang, Huailai and Ulanqab. Reclaimed water treatment plants and pipeline systems are planned and designed in parks to ensure that production water can be recycled via a reclaimed water system after the project is put into operation.

### 案例：基于缺水无水地区的数据中心节水节电绿色解决方案 Case: Water and electricity conservation solutions for data centers in water-deficient and waterless regions

本年度，世纪互联参与实施建设的某客户基于缺水无水地区的数据中心节水节电绿色解决方案，获得“2023年度中国 IDC 产业绿色解决方案奖”。在该项目中，世纪互联与客户戮力同心，最大限度应用自然冷源、太阳能、余热回收、低功耗设备，为客户落实多种节水和无水空调技术、高效节能直流供电架构、余热回收供暖等技术方案，以出色的工程交付能力，助力实现数据中心项目设计 PUE 低于 1.2，WUE 低于 1。

This year, VNET won the "2023 China IDC Industry Green Solution Award" for its water and electricity conservation solution for data centers in water-deficient and waterless regions that it offered to a customer. In this project, VNET collaborated with the customer to maximize the application of natural cold sources, solar energy, waste heat recovery and low-consumption equipment. We provided the customer with a variety of technical solutions, such as water conservation and water-free air conditioning technologies, energy-efficient direct current supply architecture, and waste heat recovery for heating. Relying on an outstanding project delivery performance, VNET contributed a lot to achieving a designed PUE of less than 1.2 and a WUE of less than 1 for this data center.

### 案例：世纪互联自研产品“深寒”系统 Case: The "Shen-han" cooling solution for data centers

“深寒”系统是集蒸发冷、氟泵、热管及自然冷等冷却技术，结合变频、磁悬浮轴承（无油）、离心压缩机、多联技术等节能技术于一体的空调系统，具有安全稳定、节能节水、运维简单、建设周期短等特点。相比传统水冷系统，“深寒”系统大约每年可带来 30%~50% 的能效提升。同时，“深寒”系统在提高水资源利用率上表现出色，在冷却侧有水冷系统、蒸发冷系统和无水的风冷系统等多种选择，如果选用水冷，WUE 最低可达 1.2，耗水量远远低于采用冷却塔的传统制冷系统。

The "Shen-han" cooling solution is an air conditioning system that combines evaporative cooling, fluorine pumps, heat pipes, and natural cooling technologies with energy-saving technologies such as variable frequency, magnetic bearing (oil-free), centrifugal compressor, and multi-link systems. The system is characterized by its safety and stability, energy and water conservation, simple O&M, and short construction cycle. Compared with the traditional water-cooled system, the "Shen-han" cooling solution can bring about a 30% to 50% improvement in energy efficiency every year. At the same time, the "Shen-han" cooling solution performs well at improving water utilization, with a variety of choices on the cooling side, including water-cooled systems, evaporative-cooled systems and air-cooled systems without water, etc. If water-cooled is chosen, the WUE can be as low as 1.2, and water consumption is much lower than that of traditional refrigeration systems that use cooling towers.

## 废弃物管理 Waste Management

世纪互联产生的废弃物主要为数据中心和办公场所日常运营产生的电子废弃物及生活垃圾。我们严格遵守废弃物在贮存、运输、处置各环节的相关国家法律法规，同时加强数据中心建设及运营管理，积极倡导垃圾分类管理，落实资源循环利用，严格防控环境污染风险。

The types of waste produced by VNET mainly include electronic waste and household waste, which are generated from the daily operations of its data centers and offices. We strictly abide by the relevant national laws and regulations in waste storage, transportation, disposal, etc. Meanwhile, we enhance the construction and operational management of data centers, actively promote garbage sorting, and recycle resources in order to prevent and control the risks of environmental pollution.



## 智能化办公 Intelligent Office

世纪互联持续推进智能化、无纸化办公。我们搭建并持续迭代覆盖集团全线下业务的数智化协作平台，满足员工线上办公、视频会议、一键审批等多种业务需求，以实现高效办公，云端协同。

VNET constantly promotes the practice of intelligent and paperless office. We build and continue to iterate the digital intelligent collaboration platform covering the entire line of business of the Group to meet the various business needs of employees such as online mobile office, video conferencing, one-click approval, etc., in order to realize efficient office work and cloud-based collaboration.



# 助推数字时代 算力引领

## Powering the Digital Age Leading with Computing Power

数字基础设施的发展正在成为推动中国数字经济发展的关键驱动力，因此对于算力的要求也愈加紧迫。作为全球具有重要影响力的网络空间基础设施服务提供商之一，世纪互联以创新赋能算力及数字化发展，并持续优化产品与服务，保护用户信息安全与隐私，为我国数字经济高质量发展提供助力。

The development of digital infrastructure is becoming a critical driving force for China's digital economy, creating an increasingly urgent demand for greater computing power. As one of the world's most influential cyberspace infrastructure service providers, VNET empowers computing power and digital development through innovation, continually optimizes products and services, and upholds the security and privacy of users' information to promote the high-quality development of China's digital economy.

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## 专题 Topic

## 推进数字中国建设 Boosting the Development of a Digital China

在当前数字中国的战略部署下，算力已经成为信息化社会的核心生产力，算力的基础设施建设成为实现智能时代的标志之一，建设算力网络对于优化国家算力资源布局，推动数字经济发展具有重大意义。我们与合作伙伴携手并进，致力于在算力资源的优化、开源生态的繁荣等关键领域推动国产超算生态革新和发展。

### 超互联联盟

基于“东数西算”国家战略，世纪互联基于原创思想和物理层基础设施底层开源协议的实践探索，提出“一切皆计算”、“城市就是一台计算机”，打造全新一代计算架构的“超互联”区块链原生物理基础设施网络模型。2023年1月，由世纪互联发起的“中关村超互联新基建产业创新联盟”（以下简称“超互联联盟”）正式获批成立，成为全国首家经民政部门正式登记注册、统筹全国超互联新基建的非营利性社团法人，致力于持续促进国家新一代数字基础设施战略新兴产业的联合投资、协同创新和开放生态发展。2023年2月，超互联联盟首个超级节点落户郑州，助力郑州建设数字经济时代城市“新市政”。同年12月，超互联联盟与北京市门头沟区建立战略合作，携手打造AI新生态。

In the era of digital China's strategic deployment, computing power stands as the central pillar of productivity in an information-based society. The establishment of computing power infrastructure has become one of the symbols of the intelligent era. Building computing power networks is of vital significance for optimizing the distribution of national computing power resources and advancing the development of the digital economy. Along with our partners, we are committed to promoting the reformation and development of China's supercomputing ecology in key areas such as the optimization of computing power resources and the prosperity of the open-source ecology.

### Hyper-Connected Alliance

In response to China's "Eastern Data, Western Computing" strategy, VNET has proposed several ideas, such as "Everything is about computing" and "A city is a computer". The aim of this is to build a native "hyper-connected" blockchain physical infrastructure network model for a new generation of computing architecture. This model will be based on original ideas and underlying open-source protocols for physical layer infrastructure. In January 2023, the establishment of the "Zhongguancun Hyper-Connected New Infrastructure Industrial Innovation Alliance" (the "Hyper-Connected Alliance") initiated by VNET was officially approved. It is the first non-profit juridical association officially registered with the Civil Affairs Department that is coordinating nationwide hyper-connected new infrastructure in China. The Hyper-Connected Alliance is committed to continuously promoting joint investment, collaborative innovation, and open ecological development in China's strategic emerging industries of new-generation digital infrastructure. In February 2023, the first super node of the Hyper-Connected Alliance was established in Zhengzhou, contributing to the development of the "new municipal administration" of Zhengzhou in the digital economy era. In December that same year, the Hyper-Connected Alliance established a strategic partnership with Mentougou District, Beijing, to jointly build a new AI ecology.

### 鼎好超互联 AGI 枢纽 AGI Hub

面向 AGI 时代，世纪互联与鼎好 DH3 携手打造“鼎好超互联 AGI 枢纽”。该项目持续吸纳全国一线 AI 企业与人才，汇聚市场智算资源、科研资源、资金资源、市场资源和社群资源，同时打造“通往中国 AGI 之路”系列活动。项目一方面着眼于打造前沿数字基础设施，响应国家东数西算工程，构建北京到西部枢纽节点的高速算力总线，为各行各业面向 AGI 转型提供从训练到推理的新型基础设施，赋能中关村 AI 大模型企业充足算力；另一方面围绕科技创新生态交互平台的生态，打造标杆引领，汇聚市场资源，成为中国大模型产业发展的“助推器”和“加速器”。

In the era of Artificial General Intelligence (AGI), VNET, co-built the "AGI Hub" with DINGHAO DH3. This project continuously attracts top AI enterprises and talents from across the country, and pools together market intelligence computing resources, scientific research resources, capital resources, market resources, and community resources. At the same time, it organizes a series of events named "The Road to China's AGI". Firstly, the project aims to build cutting-edge digital infrastructure and a high-speed computing bus covering hub nodes from Beijing to western China, aligning with the national "Eastern Data, Western Computing" initiative. This initiative aims to provide new infrastructure for AGI transitions across industries from training to reasoning and supplying ample computing power to AI large-model enterprises in Zhongguancun. Additionally, their goal is to build a benchmark for the ecological interactive platform for science and innovation, gather market resources, and help drive and accelerate the growth of China's large-model industry.



#### 案例：AGI 超级互联启动会

#### Case: AGI Ultra Cross Connects Kick-Off Convention

2023年10月，由超互联联盟、中国智能计算产业联盟主办，互联科技、鼎好 DH3 联合承办的“AGI 超级互联启动会”在北京圆满举行。本次活动汇聚众多行业专家、学者和业界大咖，共同探讨大模型、新算力和新一代 AGI 基础设施的发展趋势以及技术创新方向，提出一种全新的万物智能互联方式——超级互联，打造了一个让人、机器、模型和数据更紧密连接的未来世界的愿景。

In October 2023, the AGI Ultra Cross Connects Kick-Off Convention, co-sponsored by the Hyper-Connected Alliance and China's Intelligent Computing Industry Alliance, and co-organized by NEOLINK, a subbrand of VNET and DINGHAO DH3, was successfully held in Beijing. At this convention, many industrial experts, scholars, and influencers gathered to discuss the development trends and technological innovation directions of large model, new computing power, and new-generation AGI infrastructure. At this event, they proposed a new method to intelligently connect everything—Ultra Cross Connects, which creates a vision of the future where people, machines, models, and data are more closely integrated.



### 开源项目捐赠 Donation of Open Source Projects

随着大模型时代的快速发展，超算需求呈现井喷式增长，作为超算生态中的重要一环，数据中心的角色至关重要。

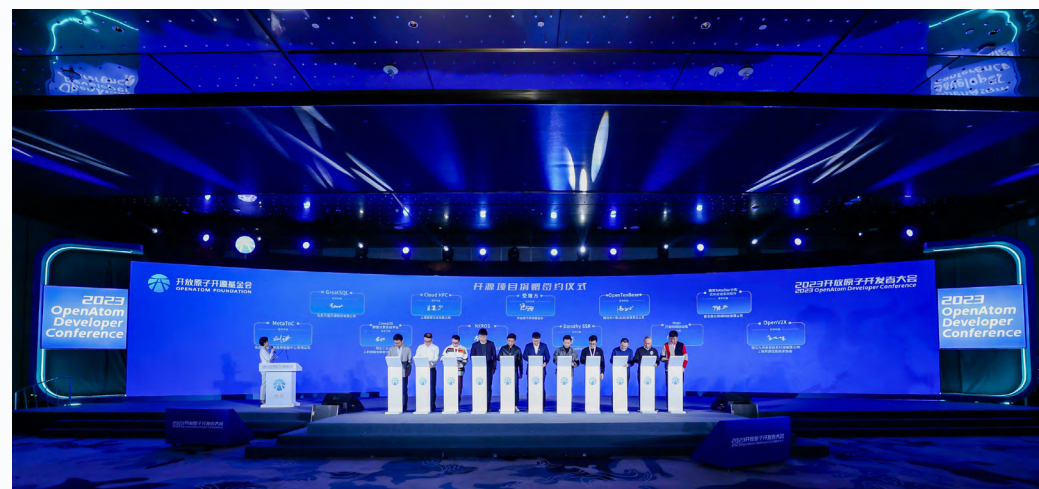
In the fast-growing era of large models, the demands for supercomputing are undergoing rapid growth. As an important part of the supercomputing ecology, data centers are playing a critical role.



#### 案例：世纪互联向开放原子开源基金会捐赠 MetaToC 项目 Case: VNET donated the MetaToC project to the OpenAtom Foundation

2023 年 12 月，世纪互联将开源项目 MetaToC (Thing to Chain) 捐赠给开放原子开源基金会。世纪互联主导的 MetaToC 开源项目加入原子基金会，可有效补充国产超算生态，推动数实融合走深走实。未来世纪互联将持续深化与开源领域的广泛合作，引导更多相关项目进入开源生态，为开发者赋能，推动开源落地，共享开源价值，为中国 IDC 产业发展注入新的活力，助力中国开源生态创新发展。

In December 2023, VNET donated the MetaToC (Thing to Chain) project to the OpenAtom Foundation. This donation made the MetaToC project led by VNET a part of the Foundation, which effectively supplements China's supercomputing ecology and promotes the integration of data and reality. VNET aims to constantly deepen cooperation in the open source domain, help more relevant projects to enter the open source ecology, empower developers, promote the implementation of open source projects, and share open source values, thus injecting new vitality into the development of China's IDC industry and supporting the innovative development of China's open source ecology.



世纪互联开源负责人代表集团签署捐赠协议  
The person in charge of VNET's open source projects signing a donation agreement on behalf of the Group

### 算力相关获奖： Computing power awards obtained:



2023 年 2 月 February 2023  
获奖名称 Name of awards  
2022 年度中国 IDC 产业绿色算力数据中心  
2022 China IDC Industry Green Computing Power Data Center  
发布 / 颁证机构名称 Issuers  
中国 IDC 产业年度大典组委会  
China IDC Industry Annual Ceremony Organizing Committee



2023 年 7 月 July 2023  
获奖名称 Name of awards  
入选“北京市通用人工智能产业创新伙伴计划（第二批）”成员名单  
Selected in the members list of the "Beijing General Artificial Intelligence Industry Innovation Partner Program (Second Batch)"  
入选“北京市通用人工智能产业创新伙伴计划（第二批）”算力伙伴  
Selected as the computing power partner of the "Beijing General Artificial Intelligence Industry Innovation Partner Program (Second Batch)"  
发布 / 颁证机构名称 Issuers  
北京市经济和信息化局  
Beijing Municipal Bureau of Economy and Information Technology



2023 年 8 月 August 2023  
获奖名称 Name of awards  
IDCC 2023 长三角区域算力应用先锋奖  
IDCC 2023 Pioneer Award for the Application of Computing Power in the Yangtze River Delta Region  
发布 / 颁证机构名称 Issuers  
中国 IDC 产业年度大典组委会  
China IDC Industry Annual Ceremony Organizing Committee  
上海市通信学会“算力浦江”专委会  
"Computing Power Pujiang" Special Committee of the Shanghai Institute of Communications  
中国通信工业协会数据中心委员会  
China Communications Industry Association Data Center Committee



## 产品与服务

世纪互联致力于为客户提供安全可靠的产品与服务，在保障业务稳定运营的同时，持续提高服务质量、提升服务满意度。

## Products and Services

VNET provides customers with safe and reliable products to continuously improve service quality and enhance customer satisfaction while ensuring stable business operations.

## 运营安全管理

## Operational Safety Management

世纪互联 ESG 目标：  
VNET's ESG Targets:

大型 IDC 运营中断事件为 0  
No major IDC operational disruptions

大型 IDC 网络中断事件为 0  
No major IDC network outages



世纪互联致力于持续为客户提供稳定可靠的互联网基础设施服务，及时识别并处理业务运营过程中的内外部风险，保障业务稳健运行。

VNET is committed to providing customers with stable and reliable Internet infrastructure, timely identifying and dealing with internal and external risks during business operations, guaranteeing stable business operations.

在选址方面，我们的数据中心选择建设在低风险地区，规避存在重大自然地理风险的区域，减轻自然灾害对业务运营的影响。我们开发数据中心全景管理平台，展示机房布局 and 机柜当前的状态，并对数据中心可用资源进行监测和预警提示，结合动力环境监控系统和建筑自动化控制系统对数据中心运行参数及状态进行实时监测，保障数据中心在常规及高负载状态下的稳定运转。

For site selection, we choose to build our data center in low-risk areas, avoiding areas with major natural geographic risks and mitigating the impact of natural disasters on business operations. We have developed a data center panorama platform to display the layout of the computer rooms and the current status of the cabinets, and provide monitoring and early warning alerts for the available resources of data centers. Combined with the power environment monitoring system and the building automation control system, we conduct real-time monitoring of the data center's operating parameters and status to ensure the stable operation of the data center in both regular and high-load conditions.

在管理优化方面，为降低业务中断的风险及影响，世纪互联优化系统架构，升级硬件设施，并建立冗余机制，对关键部件或功能模块进行冗余配置。如发生故障，备援部件可及时介入并承担工作，构建第二或第三道安全防线，有效降低中断风险。我们亦在建立数据备份中心的基础上增加了数据备份节点，将关键数据进行异地备份，并及时与客户进行沟通，保护客户和合作伙伴的数据安全。

To optimize the management and reduce the risks and influence of business interruptions, VNET optimizes the system architecture, upgrades the hardware facilities, and establishes redundant mechanisms to provide redundant configuration of key components or functions. Spare components can be provided and put into use in a timely manner in case of any failure, establishing a second or third line of defense to effectively reduce the risk of interruption. We also add data backup nodes to remotely backup key data while establishing data backup centers, and communicate with customers in a timely manner to uphold the security of customers' and partners' data.

## 业务连续性保障

在业务影响和风险分析的基础上，世纪互联制定了详细、全面的应急预案，并按计划组织演练，确保应急预案切实可行，发现问题及时改进。做到面对突发事件（如自然灾害、网络攻击等）时有条不紊，确保我们的关键业务在面临灾难、中断时持续运行或用最短的时间恢复至可接受的服务水平。针对 UPS 及空调等资源，我们至少每季度开展一次灾难性恢复演练；针对服务器资源，我们至少每半年开展一次灾难性恢复演练，如模拟在硬件主板损坏情况下的业务恢复测试，并对应急处理流程进行优化，提升团队及设施的应急响应能力。目前，我们主营业务所涉及的多场所已通过业务连续性管理体系（ISO 22301）认证。

## Business Continuity Guarantee

Based on business impact and risk analysis, VNET has developed detailed and comprehensive emergency response guidelines, and organized drills according to plans to ensure the feasibility of the plans and timely improvement in case of any issues found. We aim to be well-prepared in the face of emergencies (such as natural disasters, cyber-attacks, etc.), ensuring that our critical business operations can continue to run or be restored to an acceptable service level in the shortest time possible in the event of disasters or interruptions. For resources such as UPS and air conditioning, we conduct disaster recovery drills at least once every quarter; for server resources, we carry out disaster recovery drills at least semiannually to simulate business recovery tests in case of hardware motherboard damage. We also optimize emergency treatment processes to improve the emergency response capabilities of our teams and facilities. At present, a number of sites involved in our main business have been certified to the Business Continuity Management Systems (ISO 22301).

## 产品创新

产品与技术的创新是推动集团发展的动力。面对数据时代的新机遇，世纪互联在云平台、云服务等领域积极探索新的解决方案，对产品系统流程进行创新，推动中国市场数字化转型。

## Product Innovation

The innovation of product and technology is the driving force for the development of the Group. In the face of new opportunities in the data era, VNET actively explores new solutions in cloud platforms, cloud services and other fields, innovates product system processes, and promotes the digital transformation of the Chinese market.

### 推出新服务：

由世纪互联运营的 Microsoft Teams 正式发布

### Launching new services:

Microsoft Teams Operated by 21Vianet was Officially Released

作为微软现代办公平台 Microsoft 365 的核心组件，由世纪互联运营的 Microsoft Teams 于 2023 年 4 月 1 日正式发布，为中国市场客户量身定制了一个安全、智能、本土运营的团队管理、远程协作与应用聚合平台。同时，随着 Teams 的落地，由世纪互联运营的 Office 365 加上企业移动与安全（EMS）解决方案，也将正式升级为全新的品牌，并正式推出由世纪互联运营的 Microsoft 365 产品。

Microsoft Teams operated by 21Vianet as the core component of Microsoft's modern office platform, Microsoft 365, was officially released on April 1, 2023. This tailor-made platform offers a safe, intelligent and locally-operated solution that integrates team management, remote collaboration and multiple applications for customers in the Chinese market. In addition, after the official launch of Teams, Office 365 and Enterprise Mobility and Security (EMS) solutions operated by 21Vianet will be officially upgraded to a new brand. At the same time, Microsoft 365 operated by 21Vianet will also be officially launched.



<p><b>上线新模式：</b> 由世纪互联运营的 Microsoft Azure 新商务模式正式商用</p>	<p><b>Launching new experience:</b> New Commerce Experience on Microsoft Azure Operated by 21Vianet Commercial GA</p>
<p>2023年7月13日，新商务模式在由世纪互联在中国大陆境内运营的 Microsoft Azure 上正式商用。新商务模式将以高效、灵活和整合的体验加速中国市场客户和合作伙伴的数字化转型。</p>	<p>Starting on July 13<sup>th</sup> 2023 the New Commerce Experience is available on Microsoft Azure operated by 21Vianet. This exciting offer will accelerate the digital transformation of customers and partners in the China market with an efficient, flexible, and integrated experience.</p>

<p><b>应用新技术：</b> AR 眼镜协同数据中心现场运维</p>	<p><b>Applying new technologies:</b> AR Glasses Synergize Data Center on-site Operation and Maintenance</p>
<p>我们自主研发的智航平台通过“数据治理”、“智能事件”、“智能变更”和“AR 协同”等功能，实现对数据中心的人员、设施、流程的全面智能化管理。在处理数据中心故障时，我们采用 AR 眼镜呈现现场实况，远程专家通过视频会议对现场故障进行分析，指导现场运维人员进行操作，从而提高故障解决效率，减少对业务的影响。</p>	<p>We conduct comprehensive intelligent management for personnel, facilities, and processes in data centers through functions such as "Data Governance", "Intelligent Events", "Intelligent Changes", and "AR Collaboration" of our independently developed DCIM platform. We use AR glasses to display the actual on-site situation when dealing with faults in data centers. From this, remote experts can analyze on-site faults via video conferencing software and guide on-site O&amp;M personnel to carry out manual operations, thus improving troubleshooting efficiency and reducing the impact on services.</p>

<p><b>搭建新平台：</b> 技术平台创新</p>	<p><b>Building new platform:</b> Technology Platform Innovation</p>
<p>2023年，世纪互联蓝云对商务流程系统进行了创新，尝试采用零代码平台技术以快速构建业务逻辑，降低交付团队对代码技术人员的依赖性，缩短交付周期。在技术应用后，人力成本可同比降低 50% 左右，交付周期可缩短 2 倍以上。</p> <p>针对运维流程，系统在优化过程中，实现了跨集群服务的自动扩展和迁移、基础运维的自动化等功能，提高了运维工作效率。此外，团队开发了轻量化 DevOps 系统，更易于维护，同时减少了 90% 的代码构建和部署时间。</p>	<p>In 2023, 21Vianet Blue Cloud innovated business processes and constructed business logics via zero code platform technology to reduce the dependency of the delivery team on code technicians and shorten the delivery cycle. After using the technology, the labor costs were reduced by about 50%, and the delivery cycle was shortened more than 2-fold.</p> <p>For the operation and maintenance process, the system has achieved automatic expansion and migration of cross-cluster services, automation of basic operation and maintenance, and other functions in the process of optimization, which has improved the efficiency of operation and maintenance work. In addition, the team has developed a lightweight DevOps system that is easier to maintain and reduces the time of code building and deployment by 90%.</p>

## 客户服务

## Customer Services



世纪互联高度重视客户服务，为持续提升客户服务水平，我们每年开展两次面向全国客户的满意度调查，包括售前、售后、机房网络、服务态度等内容，以期全方面了解客户的意见及建议，与客户建立更加深远的伙伴关系。为更有针对性的了解客户对我们的服务和产品的真实想法和需求，我们于本年度扩大了客户满意度调查的受访人范围。我们亦对客服人员的专业培训，提高客服人员在线解决问题的能力、专业素质及服务水平。本年度，全国客户满意度达 99.81%。

VNET highly values customer service. To continuously improve the level of customer service, we carry out two regular national customer satisfaction surveys each year, involving topics such as pre-sales and after-sales services, computer room networks, and service attitudes. The survey results enable us to understand our customers' opinions and suggestions in all aspects, and allow us to establish a more far-reaching partnership with our customers. To gain a better understanding of our customers' true opinions and requirements of our services and products, we have expanded the scope of customer satisfaction survey respondents this year. We have also provided specialized training for customer service staff to enhance their ability to address problems online, as well as their professionalism and service level. This year, the national customer satisfaction reached 99.81%.

世纪互联于 2022 年度创新实施了数据中心服务满意度调查机制，我们以抽样的形式向当天有数据中心服务需求的客户进行实时满意度调查。如有负面反馈，数据中心会对问题进行追踪及整改，并同步至全国各数据中心。截至报告期末，数据中心服务满意率为 100%。

In 2022, VNET innovatively implemented a data center service satisfaction survey mechanism, sending real-time satisfaction questionnaires in the form of sampling to customers who have data center service needs on the day. If there is any negative feedback, the data center will track and rectify the problem and synchronize it to all data centers nationwide. By the end of the reporting period, the data center service satisfaction rate was 100%.





# 信息安全与数据隐私

## Information Security and Data Privacy

世纪互联深耕信息安全领域，依靠夯实的信息安全管理体系、严格的数据保护制度要求、信息安全系统和风险管理程序、扎实的员工信息安全培训，不断强化数据中心和云服务平台运营管理能力，为客户的信息及数据安全保驾护航。

VNET is deeply involved in the field of information security. We rely on our solid information security management system, strict data protection system, information security system and risk management procedures and our sound employee information security training programs to continuously improves and strengthens the operation and management capabilities of data centers and cloud service platforms to safeguard customers' information and data.

# 体系建设

## Systems Construction

世纪互联持续加强信息安全管理建设及落地，通过《合规与信息安全管理规定》《信息安全管理方针》与《信息安全风险管理程序》等制度，明确各业务的信息安全管理职责，为信息安全日常实践提供规范化指导依据。根据《合规与信息安全管理规定》，包括管理者在内的所有员工均需坚持履行有关义务，我们搭建了清晰的上报流程，以供员工在发现可疑情况时报告疑虑、问题和缺陷。

VNET constantly enhances the construction and implementation of the information security management system. Through the *Compliance and Information Security Management Regulations*, the *Information Security Management System Guidelines*, the *Information Security Risk Management Procedures*, and other systems, the Group clarifies the information security management responsibilities of each business department, and provides standardized guidance for the daily practice of information security management. According to the *Compliance and Information Security Management Regulations*, all employees, including managers, must adhere to their relevant obligations. We have established a clear escalation process for employees to report concerns, issues, and defects when suspicious situations are discovered.

我们建立了完善的信息安全管治架构，对信息安全工作进行监督和执行。审计委员会代表董事会对集团定期报告中有关网络安全事项的披露保持监督。集团的信息安全计划由我们的首席信息安全官（CISO）进行监督，各业务和职能部门之间进行协作，并听取管理层和董事会的意见。CISO 负责制定和执行集团的信息安全战略，其主要目标是保护集团的信息和技术资产，包括对网络威胁进行监控、报告、管理和补救。

We have established a sound information security governance structure to oversee and execute information security work. The Audit Committee on behalf of the Board shall maintain oversight of the disclosure related to cybersecurity matters in the periodic reports of the Group. The Group's information security program is overseen by our Chief Information Security Officer (CISO), with collaboration across businesses and functions and input from both management and the Board of Directors. The CISO is responsible for establishing and executing the Group's information security strategy, the primary goal of which is to protect Group information and technology assets. This includes monitoring, reporting, managing and remediating cyber threats.

我们获得了由中国网络安全审查认证和市场监管大数据中心所颁发的灾难备份与恢复一级及安全运维二级服务资质，我们的数据中心还具备信息系统安全集成三级服务资质、信息安全应急处理三级服务资质及信息安全风险评估三级服务资质。我们持续开展数据中心及应用系统的等级保护测评（三级），以识别信息系统存在的安全问题，为信息安全建设提供整体解决方案，保障系统稳定运行。同时，我们开展了 SOC2 Type II 审计，获得由专业的第三方会计师事务所依据美国注册会计师协会（AICPA）审计准则，针对某数据中心的互联网数据中心服务体系的安全性和可用性相关的控制设计适当性和运行有效性出具的独立评估报告。目前，集团主营业务所涉及的多场所已获得了信息技术服务管理体系（ISO/IEC 20000）及信息安全管理体（ISO/IEC 27001）认证。

We have obtained Level 1 disaster backup and recovery certification and Level 2 security operation and maintenance certifications issued by the China Cybersecurity Review, Certification and Market Regulation Big Data Center. Our data centers also have obtained Level 3 information system security integration certification, Level 3 information security emergency response certification, and Level 3 information security risk assessment certification. We regularly conduct classified protection (Class III) for data centers and application systems. This allows us to identify security issues in information systems, provide an overall solution for information security, and ensure systems operate stably. At the same time, we have conducted SOC2 Type II audits and obtained independent evaluation reports issued by professional third-party accounting firms in accordance with the auditing standards of the American Institute of Certified Public Accountants (AICPA) regarding the appropriateness of control design and the effectiveness of operation related to the security and availability of the Internet data center service system in a certain data center. At present, a number of sites involved in our main business have been certified to Information Technology Service Management Systems (ISO/IEC 20000) and Information Security Management Systems (ISO/IEC 27001).

在云服务层面，世纪互联蓝云已通过包括信息技术服务管理体系（ISO/IEC 20000）、信息安全管理体（ISO/IEC 27001）、公有云个人信息保护管理体系（ISO/IEC 27018）、可信云、三级网络安全等级保护测评等多项信息安全及数据隐私相关权威认证，为客户提供全方位的云安全服务。

In terms of cloud service, 21Vianet Blue Cloud has passed a range of authoritative certifications related to information security and data privacy. These include Information Technology Service Management Systems (ISO/IEC 20000), Information Security Management Systems (ISO/IEC 27001), the first international standard focused on personal data protection in public cloud (ISO/IEC 27018), Trusted Cloud Services (TCS) Evaluation, Information Security Technology Classified Protection of Cybersecurity (DJCP) and rate as Level 3, etc., providing all-round cloud security services for customers.

### 世纪互联蓝云 21Vianet Blue Cloud

- 连续多年获得 ISO/IEC 20000、ISO/IEC 27001、ISO/IEC 27018 认证。  
Has been certified with ISO/IEC 20000, ISO/IEC 27001 and ISO/IEC 27018 for several consecutive years.
- 自 2014 年首批可信云认证至今，已累计获得 11 项可信云认证。  
Has been certified by TCS since the first batch of certificates issued in 2014 and has obtained a total of 11 TCS Evaluations.
- 自 2018 年起，连续通过由独立第三方审计机构开展的 SOC 审计，并获得 SOC1、SOC2、SOC3 报告。  
Has passed a SOC audit conducted by an independent third-party auditor since 2018, and obtained SOC1, SOC2 and SOC3 reports.
- 由世纪互联运营的 Microsoft Azure，Office 365（Microsoft 365 的组件之一），Microsoft Dynamics 365 和 Microsoft Power Platform 在线服务通过三级网络安全等级保护测评。  
Microsoft Azure, Office 365 (a component of Microsoft 365), Microsoft Dynamics 365 and Microsoft Power Platform online services operated by 21Vianet compliant with DJCP 2.0 requirements and rate as Level 3 in terms of classified protection of cybersecurity.



## 措施保障 Supporting Measures

在集团信息安全管理系下，我们从物理安全及内外部网络安全等方面，制定安全保障措施及应急响应流程，保证数据安全风险管控行动的及时性和有效性。

Following the Group's information security management system, we have formulated supporting measures and emergency response processes in terms of physical security, as well as internal and external cybersecurity. This ensures the promptness and efficacy of risk control measures for data security.

### 物理安全 Physical security

- 以 GB 50174-2017《数据中心设计规范》中 A 级数据中心标准进行数据中心设计；同时，符合网络安全等级保护三级标准中的物理环境安全要求。  
Data centers are constructed in compliance with the national Grade-A standards outlined in the *Code for Design of Data Center (GB 50174-2017)*. Meanwhile, ensuring they meet physical environmental security requirements specified in the Class III Evaluation requirement for classified protection of cybersecurity.
- 在数据中心及办公楼入口安装闸机，并设定出入权限，加强人员出入管控；在数据中心内部及外围人员进出区域安装监控设施。  
We place gate machines at the entrances of data centers and office buildings and set access permissions for the access of personnel. We also install surveillance facilities inside data centers at entrances and exits.

### 内部网络安全 Internal cybersecurity

- 制定《信息安全管理策略》《办公网络安全准入管理规定》《密码管理制度》及《远程访问权限管理规定》等制度，规范内部网络管理及员工行为。  
We have formulated the *Information Security Management Strategy*, the *Office Network Security Access Management Regulations*, the *Password Management System*, the *Remote Access Permission Management Regulations*, and other regulations to standardize internal network management and employee behaviors.
- 员工必须满足设备、网络、账号、IP、防火墙等全部规范要求后，才能获得网络准入许可；员工办公设备均安装数据防泄露（DLP）终端，管理电脑内部的所有程序，监控信息传输工具，避免重要信息泄露。  
Employees must follow all the regulations on equipment, networks, accounts, IP addresses, and firewalls before they can be granted network access. Data loss prevention (DLP) terminals are installed on all employees' office devices to manage all software on computers and monitor information transfer tools to avoid important information being leaked.
- 每周均对针对重要信息系统的敏感操作开展安全审计工作。  
We conduct weekly security audits of sensitive operations on critical information systems.

### 外部网络安全 External cybersecurity

- 在外部网络安全层面，我们通过部署信息安全产品，每日对集团办公网络进行病毒、恶意攻击等方面的安全监测；每月及每季度开展漏洞扫描及渗透测试工作，以评估现有网络安全系统的完善性并进行改善；定期进行业务合规性审核，并开展内外部 IT 审计。  
To ensure external cybersecurity, we monitor the Group's office network for viruses and malicious attacks every day by deploying information security products. We perform vulnerability scans and penetration tests monthly and quarterly to evaluate the integrity of existing cybersecurity systems and make improvements. Meanwhile, we conduct regular business compliance audits, as well as internal and external IT audits.
- 针对多种类型的网络攻击问题，我们制定专项防御方案，例如通过高可用统一威胁管理（UTM）、Web 应用防火墙（WAF）、流量清洗等方式，排除恶意和非授权入侵，进行网络边界防御；通过网络检测与响应（NDR）、终端检测与响应（EDR）、日志审计等方式，提高对高级持续性威胁（APT）以及后渗透阶段的检测发现能力，进行纵深防御。  
We have developed special defense solutions to address various types of network attacks. For example, we carry out network boundary defense measures using high-availability unified threat management (UTM), web application firewall (WAF), traffic cleaning, etc. to prevent malicious and unauthorized intrusions. Additionally, we enhance our detection and discovery capabilities for advanced persistent threats (APT) and post-exploitation stages through methods such as Network Detection and Response (NDR), Endpoint Detection and Response (EDR), and log auditing, enabling us to conduct comprehensive defense measures.





为进一步保障信息安全，世纪互联建立网络安全事件响应流程，用于应对网络安全事件的发生和处理，确保集团能够及时、有效地应对和处理网络安全威胁，保护集团的信息资产和用户数据的安全。

To further guarantee information security, VNET has established a response process for cybersecurity incidents to help the Group respond to and deal with cybersecurity threats in a timely and effective manner, protecting the security of the Group's information assets and user data.

**网络安全事件响应流程**  
Response process for cybersecurity incidents





## 数据与隐私保护

世纪互联重视数据与隐私保护，遵守包括《中华人民共和国数据安全法》《中华人民共和国个人信息保护法》等法律法规，制定适用于全集团的《隐私声明》，对可能收集的信息类型及性质、如何使用该等信息、信息的授权同意、如何保留、储存和保护该等信息等内容进行阐明。

我们将数据保护措施融入到产品和服务开发中，并对保护措施进行持续改进。在保护措施上，我们通过采取访问控制、漏洞扫描、防火墙、数据隔离、传输加密等主动性、被动性保护措施，为个人信息的处理活动提供充分保障。

## Data and Privacy Protection

VNET values data and privacy protection. We abide by laws and regulations such as the *Data Security Law of the People's Republic of China* and the *Personal Information Protection Law of the People's Republic of China*. We have also formulated the group-wide *Privacy Statement*, which explains the type and nature of the information that may be collected, how it will be used, consent processes, and how it will be retained, stored, and protected.

We integrate data protection measures into the development of products and services, and continuously improve such measures. For example, we take active and passive protection measures such as access controls, vulnerability scans, firewalls, data isolation and transmission encryption to provide adequate protection for the processing of personal information.

## 能力建设

世纪互联高度重视员工信息安全文化与意识的培养。结合各岗位所面临的差异性信息安全风险，我们提供针对性培训，涵盖信息安全法规、制度、理念及技术等多个维度。同时，我们在新员工入职培训项目中增设信息安全模块。2023年，集团邀请外部专家开展信息安全、网络安全和隐私保护—信息安全管理体系（ISO/IEC 27001）标准专项培训，覆盖集团主要业务部门，整体提升信息安全管理能力。截至报告期末，世纪互联全体员工信息安全受训比例达100%。

100%

世纪互联全体员工信息安全受训比例  
Training coverage of information security for employees

## Capability Building

VNET places significant emphasis on cultivating a culture of information security and awareness among our employees. We offer targeted training covering multiple dimensions such as information security regulations, systems, concepts, and technologies based on different risks in different positions that the employees may face. We add information security modules to the induction training program for recruit. In 2023, we engaged external security experts to provide specialized Information Security Management Systems (ISO/IEC 27001) training on information security, cybersecurity, and privacy protection for the Group's major business departments to enhance our overall information security management capabilities. By the end of the reporting period, 100% of our employees have received training in information security.





# 展现企业担当 共创共赢

## Demonstrating Corporate Responsibility Co-Creation and Win-Win

世纪互联坚持以人为本，践行社会责任，彰显企业担当。

VNET adheres to the "people-oriented", practices our social responsibility and demonstrated corporate responsibility.

- 95 / 建立卓越职场  
Creating an Outstanding Workplace
- 106 / 人才发展平台  
Talent Development Platform
- 114 / 推动合作共赢  
Promoting Win-Win Cooperation
- 117 / 负责任的企业公民  
Responsible Corporate Citizen





世纪互联致力于促进人的发展和社会的全面进步，实现包容性成长。我们秉承以人为本，保障员工权益、提供多元包容的职场环境，为员工提供更多成长机遇。我们充分发挥自身优势，携手供应链共筑合作新生态。我们持续增进社会福祉，彰显负责任的企业公民形象。

VNET is committed to promoting the development of its people and the overall progress of society to achieve inclusive growth. Adhering to a "people-oriented" philosophy, we safeguard employees' legal rights and interests, and provide them with a diversified and inclusive workplace as well as various growth opportunities. Maximizing our respective advantages, we join hands with partners along the supply chain to build a new cooperation ecosystem. We constantly improve the social benefits we provide and demonstrate our image as a responsible corporate citizen.

## 建立卓越职场 Creating an Outstanding Workplace

世纪互联坚持可持续的人才培养，充分尊重并严格保障员工的各项权益，聚焦于职场环境的公平、多元化和包容性，关注员工的身心健康与福利保障，致力于为全体员工打造有助于个人发展的工作环境。

VNET adheres to sustainable talent cultivation, fully respects and strictly protects the rights and interests of employees, and focuses on fairness, diversity and inclusiveness in the workplace. We also care for the physical and mental health of employees, as well as their personal welfare. We are committed to creating a working environment that is conducive to the personal development of all employees.

## 权益保障 Safeguarding Rights and Interests

世纪互联严格遵守《中华人民共和国劳动法》《禁止使用童工规定》等规范化员工管理相关的法律法规要求。作为 UNGC 的成员企业，我们同时遵守联合国《世界人权宣言》《工商业企业与人权指导原则》《联合国全球契约十项原则》《消除对妇女一切形式歧视公约》、国际劳工组织《工作中的基本原则和权利宣言》《核心劳工标准》等国际条约。我们制定《员工手册》《世纪互联集团与区域人力资源管理实施办法》等制度，进一步规范员工权益保障工作。

VNET strictly complies with the *Labour Law of the People's Republic of China*, the *Provisions on the Prohibition of Using Child Labour*, and other relevant laws and regulations that is relevant to the standardization of our employee management. As a signatory to the UNGC, we also adhere to international treaties such as the *Universal Declaration of Human Rights*, *Guiding Principles on Business and Human Rights*, the *Ten Principles of the UN Global Compact* and the *Convention on the Elimination of All Forms of Discrimination against Women*, the International Labour Organization's *Declaration on Fundamental Principles and Rights at Work*, the *Core Labour Standard*. We compiled the *Employee Manual* and *Implementation Measures and Human Resources Management in the VNET Group and Regions* to further regulate the protection of employee rights and interests.

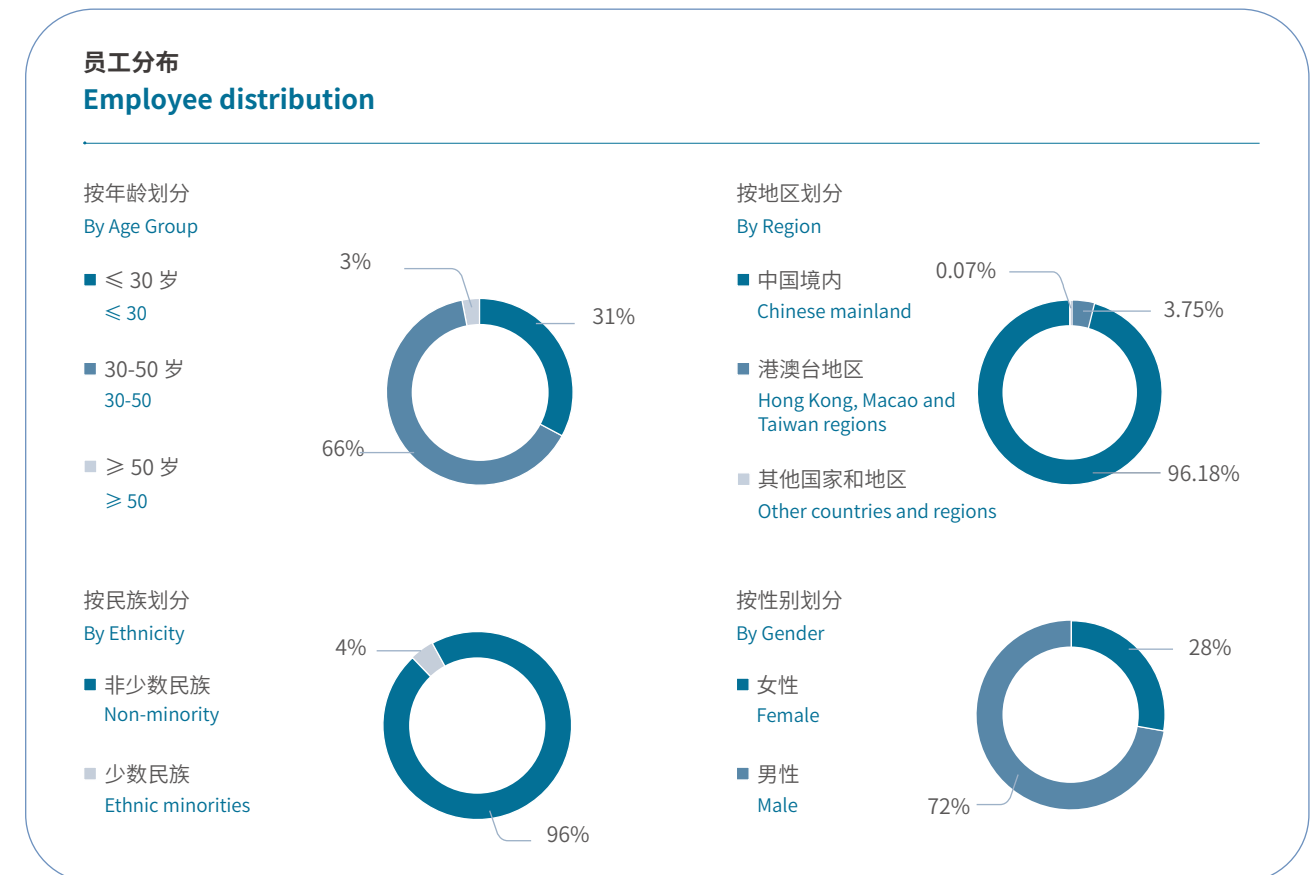
世纪互联对任何歧视或骚扰行为采取“零容忍”态度，禁止包括性骚扰在内的一切形式的歧视或骚扰行为。我们严禁一切形式的强迫劳动和雇佣童工，若发现违规雇佣情况，我们将即刻对相关责任人根据情节严重性做出严肃处理，并上报至当地劳动保障行政部门。本年度，世纪互联未出现歧视、骚扰、强迫劳动和雇佣童工等情形。

VNET takes a "zero-tolerance" approach to any discrimination or harassment and prohibits all forms of discrimination or harassment, including sexual harassment. We prohibit all forms of forced labour and child labour. If illegal employment is found, we will immediately take serious actions against those responsible for the work based on the severity of the circumstances and report the cases to the local labour security administration. This year, there were no incidents of employee discrimination, harassment, forced labour, child labour, etc.

## 多元化与性别平等 Diversity and Gender Equality

世纪互联高度认可多元和包容的团队可以带来观点的多样性。世纪互联坚持对每位员工进行平等的招聘、考核、激励与培训，不因种族、民族、地域、性别、年龄、婚姻状况等而差别对待，促进障碍人士就业，并尊重员工不同的文化信仰，落实工作平权。

VNET highly recognizes that a diverse and inclusive team can bring a diversity of perspectives. VNET insists on recruiting, assessing, motivating and training every employee equally, without any discrimination based on race, ethnicity, region, gender, age and marital status. We promote the employment of people with disabilities, respect the different cultural beliefs of employees and implement workplace equality.



世纪互联积极落实性别平等政策，建构性别友善的企业制度与工作环境。作为联合国妇女署《赋权予妇女原则》全球签署企业成员，我们将持续致力于与全球企业共同为改进性别平等实践、发挥女性潜能而努力。

VNET actively implements gender equality policies to build gender-friendly corporate systems and environments. As a global corporate signatory of the *Women's Empowerment Principles (WEPs)*, we will continue to work with global enterprises in improving gender equality practices and unleashing the potential of women.



我们通过采取持续的实际行动来保障女性权益，推出“V-Can”性别平等行动计划，鼓励全体员工用行动打破职场性别成见，支持更多女性从业者成为 IDC 行业的中坚力量。

We have taken continuous practical measures to protect women's rights, launched the "V-Can" Gender Equality Action Plan to encourage all employees to break gender stereotypes in the workplace and help more women become the backbone of the IDC industry.

**世纪互联“V-Can”性别平等行动计划**  
**VNET "V-Can" Gender Equality Action Plan**

- 适时设立人才优化相关目标，在全集团各级别与职能之间全面推动性别平等；  
Timely setting goals for talent optimization and comprehensively promoting gender equality across all levels and functions in the Group;
- 保障同工同酬，确保所有员工都能够接受同等培训和指导；  
Guaranteeing equal pay for equal work and ensuring that all employees receive equal training and mentoring;
- 支持员工生育以及育儿，给予所有符合条件的职场父母足额的带薪育儿类假期；  
Supporting employees in terms of childbirth and childcare by granting all eligible working parents fully paid parental leave;
- 针对性别差异，定制化地开展关爱活动；  
Organizing tailored caring activities according to gender differences;
- 打破性别成见，鼓励员工、特别是女性员工更多地加入非传统领域工作；  
Breaking gender stereotypes and encouraging employees, especially women, to work in non-traditional fields;
- 与其他利益相关方共同推动性别平等，致力于为欠发达地区的女性提供与男性同样的发展机会。  
Working with other stakeholders to promote gender equality and provide women in underdeveloped areas with the same development opportunities as men.

世纪互联保障员工薪酬管理的公平性和合理性，不受性别或其他因素的干扰。我们致力于合理消除男女薪酬差距，确保全体员工在职业发展、薪酬和晋升方面得到平等对待。

VNET guarantees the fairness and rationality of employee compensation management without interference from gender or other factors. We are committed to appropriately eliminating the pay gap between female and male employees so that all employees are equally treated in terms of career development, remuneration and promotion.

**男女员工薪酬比率**  
**Gender pay gap**

2023 年度，集团男性员工与女性员工月薪酬平均数比率 **1.02:1**。  
☑ In 2023, the ratio of male to female employees' average monthly salary was **1.02:1**.

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2023 年度，集团男性员工与女性员工月薪酬中位数比率 **1:1.04**。  
☑ In 2023, the ratio of male to female employees' median monthly salary was **1:1.04**.

## 员工参与及沟通 Employee Engagement and Communication

世纪互联鼓励坦诚、开放和建设性沟通的工作环境，充分保障员工的知情权、参与权、隐私权、表达权和监督权。

VNET encourages a work environment of honesty, openness and constructive communication, and fully protects the rights of employees concerning their information, participation, privacy, expression and supervision.

我们尊重员工结社自由和集体协商的权利。世纪互联通过工会委员会、女职工委员会等组织监督员工权益保障情况，并代表员工参与制定与员工切身利益相关的制度，向管理层提供包括加强员工多元化、保障职业健康与安全、提升员工福利等建议。为维护员工的合法权益，工会委员会代表员工与企业签署集体劳工合同、女职工保护专项协议等集体协商文件。

We respect employees' right to freedom of association and collective bargaining. VNET has set up bodies such as the Trade Union Committee and the Women Workers' Committee to supervise employee rights and interests. These bodies actively engage in the formulation of systems closely related to employee interests, and provide suggestions for the management team on how to enhance employee diversity, safeguard occupational health and safety, improve employee welfare, etc. In order to safeguard the legitimate rights and interests of employees, Trade Union Committees have signed the collective bargaining documents with enterprises on behalf of employees, such as collective bargaining agreements and special agreements on the protection of female employees.

为强化员工沟通，世纪互联制定了正式的员工沟通及申诉机制，员工可通过举报邮箱、举报热线等多渠道进行实名或匿名沟通及申诉。员工亦可以与工会委员会、人力资源业务合作伙伴（HRBP）、所在部门负责人或跨部门跨级别的领导进行沟通及申诉。对于需展开调查的申诉，我们将立即启动调查程序，调查流程及处理结果直接向管理层和董事会汇报。我们支持员工对工作期间受到的骚扰、欺凌或不公平对待等情况进行申诉。在纪律处分的情形中，若员工认为问题未解决或处理不当时，员工依法享有申诉权。

To enhance communication for employees, VNET has established a formal employee communication and grievance mechanism. With this mechanism, employees are encouraged to communicate and file a grievance with their real name or anonymously through multiple channels such as email and phone hotline. Employees are also permitted to communicate with and lodge complaints to the Trade Union Committee, Human Resource Business Partner (HRBP), their departmental heads, and cross-departmental leaders, as well as at higher levels beyond the immediate leadership. For any grievance requiring investigation, we will immediately initiate the investigation procedures, report the investigation process and results directly to the management team and the Board of Directors. We encourage employees to file a grievance about any harassment, bullying or unfair treatment they have encountered at work. In the case of disciplinary action, employees are entitled to file an appeal according to law if they believe that the issue has not been resolved or handled properly.

我们每年面向全体员工开展满意度调查，通过分析和跟踪调研结果了解员工的工作情况，并积极采纳员工提出的合理建议，并落实改进及优化措施。我们以匿名问卷形式开展 2023 年度员工满意度调查，问卷覆盖“敬业度”、“目标感”、“幸福感”、“压力度”等维度，给出最高满意度得分的员工占比为 94%，员工敬业度处于较高水平。

We annually conduct satisfaction surveys among all employees to understand their work status. By analyzing and tracking the survey results, we know more about the work situation of employees, actively adopt reasonable opinions and suggestions, and propose improvement and optimization measures. We conducted 2023 employee satisfaction survey anonymously, covering elements such as Job satisfaction, Purpose, Happiness and Stress. 94% of employees gave the highest score of satisfaction, and the score of employee engagement belonged to a high level.

94%

给出最高满意度得分的员工占比  
Employees gave the highest score of satisfaction



**案例：蓝云员工热心常务委员会**  
**Case: Blue Cloud Employee Committee**

世纪互联蓝云建立员工热心常务委员会（以下简称“热心肠委会”），成员包含由各部门选出的代表，并在每年年初进行换届选举。委员代表员工行使民主权利，并向管理层提供维护员工权益的各项建议。同时，热心肠委会设立拾柴基金，为困难员工提供资金帮助。2023年，通过全体成员投票决定，热心肠委会合计为2名员工提供总计超1万元的拾柴基金资金捐助，用于员工家庭成员的疾病治疗。

21Vianet Blue Cloud has established the Employee Committee (hereinafter referred to as "the Committee"), consisting of representatives elected by each department and is up for election at the beginning of each year. The members exercise their democratic rights on behalf of employees and provide the management team with various suggestions on safeguarding the rights and interests of employees. At the same time, the Committee has established a Mutual-Aid Fund, providing financial assistance for employees in need. In 2023, the Fund offered financial assistance amounting to over RMB 10,000 to two employees according to a vote made by all members to help pay for medical treatment for the employees' family members.

**职业健康与安全**  
**Occupational Health and Safety**

世纪互联 ESG 目标：  
 VNET's ESG Target:

工程建设责任死亡率为 **0**  
 Zero fatalities rate for engineering construction responsibilities



世纪互联坚信为员工打造安全健康的工作环境是企业的基本责任，我们严格遵守《中华人民共和国安全生产法》《中华人民共和国消防法》等相关法律法规和标准，由执行管理层定期审查及监督职业健康与安全相关工作落实情况及管理体的有效性，以持续提升职业健康安全能力。我们制定《安全生产管理规定》《消防安全管理制度》等集团层面的安全管理制度和规定，规范安全管理职责、安全目标、检查标准及监督评价要求，并根据职业健康与安全的风险优先级设置风险缓解行动计划。目前，我们主营业务的多场所已通过职业健康与安全管理体系（ISO 45001）认证。

VNET firmly believes that creating a safe and healthy work environment for employees is a fundamental responsibility of the enterprise. We strictly abide by the *Work Safety Law of the People's Republic of China*, the *Fire Protection Law of the People's Republic of China*, as well as other relevant laws, regulations and standards. The executive management regularly reviews and supervises the implementation of work related to occupational health and safety and the effectiveness of the management system to continuously improve occupational health and safety management capabilities. We have issued the Regulations on *Work Safety Management*, *Fire Safety Management System*, and other safety management systems and regulations at the group level, which specify safety management responsibilities, safety goals, inspection standards, as well as requirements for supervision and evaluation. We have also established a risk mitigation action plan based on the risk priority of occupational health and safety. At present, a number of sites in our main business have been certified to the Occupational Health and Safety Management Systems (ISO 45001).

我们承诺维护全体员工、供应商及第三方合作伙伴的职业健康与安全，承诺遵守运营所在地适用的职业健康及安全法规要求。我们设定工程建设责任死亡率为零的安全生产工作目标，将职业健康与安全绩效目标纳入相关管理人员的薪酬奖金评估因素中。同时，我们通过工会委员会听取员工关于职业健康与安全的建议，持续优化健康与安全相关管理。

We strive to maintain the occupational health and safety of all employees, suppliers and third-party partners. We also aim to abide by applicable occupational health and safety regulations in the places where we operate. We have set a work safety target of achieving zero fatalities rate for engineering construction responsibilities. We also include occupational health and safety performance targets as a part of our salary and bonus evaluations for relevant managers. Meanwhile, we listen to staff's advice on occupational health and safety via the Trade Union Committee to continuously optimize health and safety-related management.

**安全生产管理**  
**Work Safety Management**

我们为员工提供和维护安全装置、设备和工作系统，并定期组织安全应急演练、消防安全培训，以降低伤害事故发生的可能性、增强员工安全意识。世纪互联高度重视工程中高风险和高发生率的安全隐患，针对性地制定了第一批安全标准化图册，为各项目提供了可视化、可操作的安全执行标准。同时，我们根据施工项目的季节和地域特点，编制不同的保障措施和应急预案，针对性管理工程项目安全问题。

We provide and maintain devices, equipment and work systems for the safety of our employees. Safety drills and fire safety training are organized regularly to reduce the possibility of accidental injuries and enhance employees' safety awareness. VNET attached great importance on the protection against high-risk and high-incidence safety hazards in construction projects and developed the first series of safety standardization atlases in a targeted manner to provide visual and operable safety standards for each project. In addition, we developed different safeguard measures and emergency response plans based on the seasonal and geographical characteristics of the construction projects to manage project safety issues in a targeted manner.

我们亦重视项目建设中承包商员工的职业健康安全，与承包商签订《安全生产协议书》和《安全施工责任协议书》，并要求分包单位遵循世纪互联的安全生产管理惯例，确保人员、设备、工程作业的安全，杜绝各类事故、事件及违章、违规、违反安全协议条款的行为。2023年，世纪互联对员工和承包商员工均开展了安全生产相关教育培训，安全生产培训覆盖100%员工。

We also value the occupational health and safety of the employees of contractors employed in construction projects. We sign *Work Safety Agreements* and *Construction Safety Liability Agreements* with contractors and require subcontractors to follow VNET's work safety management practice to ensure the safety of personnel, equipment and operations and avoid accidents and incidents, as well as to prevent regulation violations and safety agreement breaches. In 2023, VNET conducted work safety-related education and training for all employees and contractors' employees, with the work safety training coverage of 100%.

**100%**

安全生产培训覆盖员工  
 Work safety training covers employees

我们建立安全及应急处置机制，制定组织、管理、处置及预防管控措施。一旦发生安全管控事故如工伤事故等，我们将立即启动调查程序，调查事故原因。同时，我们会提出改善建议，防止类似事故再次发生。

We have established safety and emergency response mechanisms, and taken measures in terms of organization, management, treatment and preventive control. Once safety incidents such as work-related injuries happen, we initiate the investigation procedure immediately to find the causes of such incidents. At the same time, we suggest improvements to prevent the recurrence of similar incidents.





**案例：消防安全培训**  
Case: Fire safety training

2023年，世纪互联开展了多次防火安全培训活动，内容包括消防器材的使用、办公区消防安全和疏散逃生等主题，提升员工消防意识。

In 2023, VNET organized several fire safety training activities, covering topics such as the use of fire equipment, fire safety in office areas and evacuations. Our goal of this was to enhance the fire safety awareness of employees.

**安全检查**  
Safety Inspection

世纪互联设有专门团队负责对建设项目开展飞检和巡检工作，针对项目建设初期设立安全责任目标开展监督检查工作。我们聘请第三方机构，以专业、客观、公正视角对建设项目进行质量缺陷、安全隐患检查，针对潜在风险进行预警和整改。若在飞检或巡检中发现问题，我们将按照循环质量管理流程完成处置，即“检验项目制度标准 - 识别制度与实际情况的偏差及程度 - 提出整改意见进行限期整改 - 再次巡检复查整改情况”。2023年，世纪互联达成了工程建设责任死亡率为零的安全生产工作目标。

VNET has a dedicated team responsible for conducting unannounced inspections and patrol inspections of construction projects as well as supervising and checking the safety responsibility goals set at the beginning of construction. We engage third-party agencies to inspect construction projects for quality defects and potential safety hazards from a professional, objective and impartial perspective, issue early warnings and carry out rectification to eliminate potential risks. If problems are identified during unannounced inspections and patrol inspections, we will follow the cyclic quality management process for resolution, which involves: inspecting the system and standards of the project, identifying deviations and degree between the system and actual conditions, proposing corrective measures for timely rectification, reinspecting to review the status of corrective actions. In 2023, VNET achieved the work safety target of zero fatalities rate for engineering construction responsibilities.

**健康安全主题活动**  
Health and Safety-themed Activities

为加强集团职业健康与安全文化建设，我们持续开展面向员工的健康安全主题活动，提升员工的健康安全意识与职场压力管理能力。针对员工心理健康，我们设置心理健康咨询室，为员工提供专业的心理咨询服务。针对员工身体健康，我们在办公区配备自动体外除颤器（AED）设备，并组织开展急救培训、健康知识讲座。同时，我们开展健康小屋项目为员工提供免费的中医问诊及按摩理疗等服务。

To enhance the corporate culture of occupational health and safety, we continuously carry out health and safety-themed activities for our employees to enhance their health and safety awareness, as well as their workplace stress management abilities. For our employees' mental health, we set up a psychological consultation room in the office area to provide professional psychological counseling for employees. For our employees' physical health, we provide automatic external defibrillators (AEDs) in the office area and organize first aid training and health knowledge lectures. In addition, we have launched the Health Room project to provide employees with free services such as traditional Chinese medicine consultations and massage therapy.



**案例：女性“两癌筛查”知识讲座**  
Case: Lecture on cervical and breast cancer screening for female employees

2023年3月，世纪互联举办“两癌筛查”知识讲座，特邀讲师针对两癌知识及防控策略等内容进行讲解与答疑，加强了员工对预防、筛查两癌病变的重视与理解。

In March 2023, VNET held a lecture on cervical and breast cancer screening. Lecturers were invited to explain and answer questions about cervical and breast cancers, as well as strategies to prevent and control them. This has enhanced our employees' awareness and understanding of the prevention and screening of two major cancers.





## 福利与关怀 Welfare and Care

世纪互联搭建了完善的福利关怀体系，在为所有员工提供法定社会保险和福利的基础上，打造了包含专有福利、周年纪念福利、员工关怀福利、健康安全福利、休闲娱乐福利、特色节假日福利六个板块的福利体系。

VNET has created a robust welfare system. In addition to social insurance and welfare prescribed by national and regional regulations, we provide all employees with six categories of supplemental benefits, including exclusive benefits, anniversary benefits, employee care benefits, health and safety benefits, recreational benefits, as well as special holiday benefits.



## 员工关怀 Employee Care

我们充分考虑员工的育儿需求，严格落实育儿假政策，为哺乳期女性员工提供灵活工作时间，并在办公区域打造了隐私且便利的哺乳场所。

Considering the childcare needs of employees, we strictly follow policies on parental leave, offer flexible work schedules for breastfeeding employees, and set up a private and convenient breastfeeding place in the office area.

我们为员工提供全方位的支持，为遭遇紧急情况或者突发困难的员工提供帮扶和补助，在其最需要关怀的时刻送去温暖。2023 年，世纪互联工会委员会向重病困难员工发放了共计 4 万元补助金。

We provide comprehensive support for employees and provide assistance and subsidies for employees who encounter emergencies or experience sudden misfortune, offering them warmth when they need it most. In 2023, VNET's Trade Union Committee distributed a total of RMB 40,000 of living subsidies to employees with severe illness and employees in need.

## 员工活动 Employee Activities

世纪互联组织员工开展丰富多样的文化体育活动，致力于为员工打造充实而有意义的业余生活，加强员工身体素质，促进团队协作，并有效缓解员工在职场中面临的压力，提升员工工作幸福感。

VNET organizes a variety of cultural and sports activities for employees. We are committed to providing fulfilling and meaningful spare-time activities for employees, enhancing their physical health, promoting teamwork, effectively relieving workplace stress, and enhancing employee job satisfaction.



### 案例：第七届“腾云驾雾杯”内部足球联赛 Case: The 7<sup>th</sup> "Cloud Riding Cup" Internal Football League

2023 年 7 月，世纪互联举办的第七届“腾云驾雾杯”内部足球联赛在北京顺利落幕。比赛历时一个多月，共吸引了来自不同事业部和部门的数十名队员参赛，充分凝聚了员工的团队意志。

In July 2023, VNET concluded the 7<sup>th</sup> "Cloud Riding Cup" Internal Football League in Beijing. The tournament lasted over one month and attracted dozens of players from different divisions and departments, adequately raising employees' team spirits.



第七届“腾云驾雾杯”内部足球联赛  
The 7<sup>th</sup> "Cloud Riding Cup" Internal Football League





### 案例：第三届“互联展翼杯”内部篮球联赛

Case: The 3<sup>rd</sup> "VNET Wingspaning Cup" Internal Basketball League

2023年10月，世纪互联举办第三届“互联展翼杯”内部篮球联赛。本届比赛共有6支队伍、70多名队员参赛，展现了互联人非凡的精气神。

In October 2023, VNET organized the 3<sup>rd</sup> "VNET Wingspaning Cup" Internal Basketball League. A total of 6 teams with over 70 players participated in the competition, demonstrating the extraordinary passion of VNET's employees.



第三届“互联展翼杯”内部篮球联赛  
The 3<sup>rd</sup> "VNET Wingspaning Cup" Internal Basketball League



### 案例：世纪互联举办亲子日活动

Case: VNET Hosted a Parent & Child Day Event

为进一步丰富企业文化建设内容，创设和谐发展的企业氛围，全方位提高家长和孩子的亲密关系。2023年7月，世纪互联举办亲子活动日。我们邀请员工的孩子参观北京冠捷办公大楼，了解集团发展历程及文化，并组织亲子游戏、蔬菜水果采摘等精彩活动。

To further enrich our corporate culture, create a harmonious corporate atmosphere, and strengthen the relationship between parents and children, VNET hosted the Parent & Child Day event in July 2023. For this event, we invited employees' children to visit the Beijing Guanjie Office Building, where they learned about the Group's history and culture. We also organized exciting activities such as parent-child games, as well as fruit and vegetable picking.



世纪互联亲子活动日  
VNET's Parent & Child Day

## 人才发展平台 Talent Development Platform

我们希望每个员工都能在世纪互联发挥自己的价值，获得充分、平等的发展机会。我们将人力资源体系和干部管理体系相融合，积极了解并满足集团发展需求，不断践行可持续的人才发展战略。

We hope that every employee can demonstrate their value at VNET and enjoy adequate and equal opportunities for professional development. We integrate the human resources system with the cadre management system, actively understand and satisfy the development needs of the Group and continuously practice a sustainable talent development strategy.

## 人才培养 Nurturing Talent

世纪互联建立了系统化、多层次的员工培训体系，我们根据《员工培训管理制度》对不同成长阶段的员工开展针对性培训。为服务各业务线人才培养需求，实现知识共创、知识共享，世纪互联打造“互联e学”在线学习平台实现数字化人才培养。“互联e学”平台以培养员工领导力、专业力和通用力为核心目的，统筹平台资源，为员工提供定制化成长学习地图。目前，“互联e学”平台共上线了545门精品课程。

VNET has established a multi-level and systematic employee training system. We provide targeted training for our employees at different development stages according to the *Employee Training Management System*. In order to serve the talent training needs of all business lines and achieve knowledge co-creation and sharing, we have built the "VNET E-Learning" platform to achieve digital talent training. The platform focuses on nurturing leadership, profession and general capabilities, and integrating resources to tailor learning maps for each employee. Currently, a total of 545 premium courses have been released on the "VNET E-Learning" platform.

# 545

 门

“互联e学”平台共上线精品课程

The number of premium courses have been released on the "VNET E-Learning" platform







我们针对不同岗位的员工定期开展特色培训项目，旨在提升员工的综合能力和专业技能。

We regularly conduct featured training programs for different positions to enhance their comprehensive abilities and professional skills.

针对管理类人才，我们构建了多层次的全面继任计划和发展计划。我们面向高管、中层和基层管理者设置了高管定制化培养项目、储备干部项目、管培生项目三大培训模块。

To help cultivate managerial talents, we constructed multi-levelled comprehensive succession and development plans. We also set up three training modules for our executives, middle-level managers, and junior managers with "Customized Training Program for Senior Executive", "Cadre Reserve Candidate Program" and "Management Trainee Development Program".

**案例：世纪互联蓝云“英才计划”**  
Case: 21Vianet Blue Cloud "Elite Plan"

世纪互联蓝云领导力发展项目“英才计划”围绕达成工作结果、带领团队成功、促进人际协调、发挥个人效能四大能力维度，提升管理层领导能力。课程通过课堂教学、团队熔炼、沙盘演练、观点输出与反馈等形式开展，并选定真实业务场景课题，形成可落地的解决方案成功交付，为解决实际工作问题提供有力支撑。本年度，“英才计划”毕业人数共计43人，员工保留率为100%。

21Vianet Blue Cloud's leadership development program, the "Elite Plan", aims to improve the leadership of the management team from four competence aspects: delivering work-related outcomes, leading teams to success, facilitating interpersonal coordination, and displaying personal effectiveness. The course was delivered through various methods, such as classroom teaching, team practices, sand table drills, viewpoint presentations. During the course, real business scenario topics are selected to form landing solutions for successful delivery, providing solid support for solving practical work problems. This year, a total of 43 employees finished the "Elite Plan" training course, achieving an employee retention rate of 100%.



“英才计划”培训  
"Elite Plan" Training Course



针对有潜力的青年人才,我们以梯队建设的形式进行培养。我们开展管培生项目,组织多样化的培训实践和比赛,并加强校企合作,致力于为集团人才发展注入新鲜血液。2023年,世纪互联与6所院校建立校企合作订单班合作机制,与5所院校达成校企联合实习基地合作协议,为超过160位学生提供实习岗位。

We use a formal talent pipeline development strategy to train young talents with potentials. We have introduced the Management Trainee Development Program, organized diverse training practices and competitions and strengthened school-enterprise cooperation to inject fresh blood into the Group's talent pool. In 2023, VNET established a school-enterprise cooperation mechanism called an "oriented class" with 6 institutions and signed cooperation agreements with 5 institutions for jointly internship bases, providing over 160 students with internship positions.

160+ 位

为学生提供实习岗位

Provide internship position for students

**案例：春苗青训营**  
Case: The "Seedling Camp"

2023年,世纪互联开展春苗青训营管培生项目。此次集训营旨在培养基于AGI与数智化建设,提供销售综合型解决方案的储备候选人。

In 2023, VNET launched a Management Trainee Development Program called the "Seedling Camp". This camp aimed to cultivate reserve candidates who can provide integrated sales solutions based on the construction of AGI and data intelligence.

我们集合集团内训师资与行业生态合作伙伴师资共计36位,为青训营集中提供为期1个月的岗前训练。经评审与考试成绩整体评估,19位青训营伙伴进入工作岗位,迎来他们职业生涯发展的新阶段。本次集训营开营实践为加速培养应届生起到了关键引导作用,对选拔内训师驱动知识传承,建立学习型组织产生了积极影响。

We mobilized 36 trainers from the Group and partners within the industry to provide participants at the "Seedling Camp" with one-month pre-job training. Based on the review and examination performance, 19 participants were selected, entering a new phase of their career development. This Camp played a critical guiding role in accelerating the training of fresh graduates and had a positive impact on the selection of internal trainers, promoting the inheritance of knowledge and establishing a learning-based organization.



春苗青训营集训现场  
The "Seedling Camp"



6,500

累计参赛人次

The total number of participants

120+ 名

选拔的优秀运维工程师人数

Number of outstanding engineers selected

针对世纪互联的中坚力量——运维工程师,集团自2017年起打造的“荣耀运维人”系列培养项目,通过技术竞赛、训练营等环节,增进员工的专业技能及技术交流,累计吸引了近6,500人次参赛,选拔超120余名优秀运维工程师。

For O&M engineers, the backbone of VNET, the Group started the Honor O&M Expert Program series in 2017. The program includes technology competitions, training camps, and other modules to promote technical exchanges among employees and enhance their professional skills. The program has attracted approximately 6,500 participants and selected over 120 outstanding O&M engineers.

**案例：第七届荣耀运维人知识技能竞赛**  
Case: The 7<sup>th</sup> Session of the Honor O&M Expert Program

2023年,世纪互联启动第七届“荣耀运维人”知识技能竞赛,合计1,536名运维人员报名参赛,共选拔出24名各技术赛道的优秀工程师。我们设置每日学练、个人赛、战队赛、金牌运维训练营四个环节,通过多维度的试题考察参赛者的专业知识、实操技能、管理知识,从而促进企业文化与战略思想宣传与践行。通过竞赛实操锻炼与理论知识的学习,加强了世纪互联运维工程师的凝聚力、高效运维服务能力,强化了工匠精神。

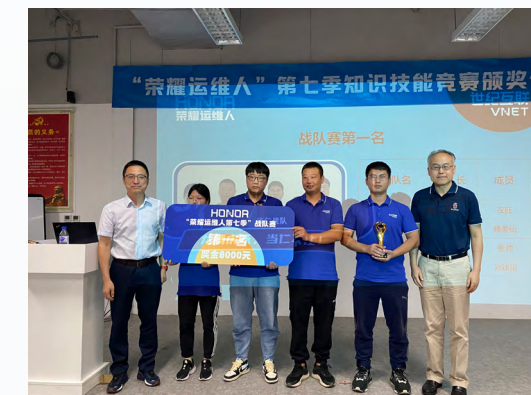
In 2023, VNET launched the 7<sup>th</sup> Session of the Honor O&M Expert Program, attracting 1,536 participants, and a total of 24 outstanding engineers from each technical track were selected. We set up four modules, namely: daily training, individual competition, team competition and premium O&M training camp. Through multi-dimensional test questions, we examine the professional knowledge, practical skills and management knowledge of the participants, to promote the publicity and practice of corporate culture and strategic thinking. Through the competition, practical exercise and theoretical knowledge learning, the cohesion and efficient operation and maintenance service ability of the engineers of VNET have been strengthened, and the craftsmanship spirit has been strengthened.

1,536 名

运维人员参赛人数  
O&M participants

24 名

从各技术赛道选拔的优秀工程师数量  
Number of outstanding engineers selected from each technical track



第七届“荣耀运维人”颁奖仪式现场  
Award Ceremony for the 7<sup>th</sup> Session of the Honor O&M Expert Program





我们在管培生计划及运维系列培训中均设置了导师制度，为员工与导师提供更加紧密的沟通桥梁，帮助员工获得更多的机会和支持。此外，为进一步提升员工能力，我们也积极与外部教育机构合作，为员工开发或提供相关培训课程。世纪互联鼓励员工利用外部专业资源完善自身专业能力，为全体员工提供专业考试认证的费用报销支持。

We use mentorship as a bridge to connect employees and mentors in the Management Trainee Development Program and O&M series training to help employees gain more opportunities and support. Moreover, to further enhance the capabilities of employees, we actively partner with external educational institutions to develop or provide relevant training courses. VNET encourages employees to leverage external professional resources to improve their expertise and provides support for all employees by reimbursing their expenses for pursuing professional certifications.

## 发展与激励

世纪互联建立了完善的职级体系与合理的晋升机制，为所有员工提供平等的发展机会。我们制定并发布《世纪互联职位职级管理办法》，规范管理、销售、技术、专业四种职业发展序列，员工可根据自身职业规划进行发展方向的选择。

## Development and Incentive Program

VNET has established a comprehensive rank structure and promotion mechanism to ensure equal opportunities for all employees. We have also formulated and released the *VNET Position & Rank Management Procedure*, providing employees with four career development paths: management, sales, technician and special talent. Employees can choose their paths according to their career plans.

我们关注员工的长期表现，遵循组织发展需求、能力匹配、绩效导向、价值观导向、公平公正五项基本原则，多维度综合考察员工的晋升资格。对于空缺的岗位，我们鼓励内部推荐或员工自荐，候选人可通过竞聘考评流程实现内部转岗。

We value the long-term performance of our employees and manage their promotions from multiple perspectives based on five basic principles: organizational development needs, ability, performance, value orientation, fairness and equality. For vacant positions, we encourage internal recommendations or self-recommendations. Candidates are also granted internal transfer opportunities through competitions and evaluation processes.

我们建立多层次战略性绩效管理体系，通过对目标管理，多维度绩效评估及敏捷对话等多种方式每年对员工的工作进行考核，确保满足各层级设立的目标。

We have established a multi-level strategic performance management system, with which we conduct performance appraisals every year for employees through methods such as management by objectives, multidimensional performance appraisal and agile conversations to ensure the objectives of each level are achieved.

### 目标管理 Management by objectives

集团结合年度战略和目标，组织各级组织对目标进行分解，并据此制定个人业务目标。

The Group organizes all levels to break down objectives based on the annual strategy and goals, and sets personal business objectives on this basis.

### 基于团队的绩效评估 Team-based performance appraisal

基于团队的业绩目标完成情况，以及与其他团队的协同情况，各级组织对团队的绩效进行评估。团队成员的绩效评估一方面与团队绩效评估结果相关，另一方面也与员工个人的工作能力、业绩表现相关。

The performance of teams is evaluated by all levels based on the fulfillment of the team's performance objectives and collaboration with other teams. Performance appraisals of team members include both the team's performance appraisal results as well as the individual's working competencies and business performance.



### 多维绩效评估 Multidimensional performance appraisal

结合团队业绩目标完成情况，上级评价、同事评价、下属评价以及自我评价，并利用专业工具进行360°评估，以保障评估结果的科学性、客观性和公平性。

Using professional tool to conduct 360-degree feedback while considering the fulfillment of the team's performance objectives, as well as evaluations by superiors, colleagues and subordinates, as well as self-evaluations to guarantee scientific, objective and fair evaluations.

### 敏捷对话 Agile conversations

在日常工作中，通过邮件、智信互联、飞书、员工论坛等多种沟通渠道与员工开展即时沟通。

We carry out instant communication with employees in daily work through various channels such as email, i-Vnet, Feishu and the employee forum.





我们面向全体员工提供基于绩效的奖金与即时激励，并确保绩效考核结果以透明的方式传达给每位员工。若员工对考核结果持有异议，可向人力资源中心提出书面申诉申请。在收到申诉后，相关部门将对涉及的内容进行仔细核实，并重新进行绩效考核，并在相应时限内向申诉人反馈申诉结果。

We offer all employees performance-based bonuses and instant incentives, and ensure performance appraisal results are clearly and transparently communicated to each employee. If employees have objections to the performance appraisal results, they can file a written grievance to the Human Resources Center. After receiving the grievance, the relevant departments will verify the content related to the grievance, conduct performance appraisal re-checks, and inform the complainant about the appeal results within the corresponding time limit.

## 推动合作共赢

### Promoting Win-Win Cooperation

世纪互联的稳定发展离不开合作伙伴的支持，我们与供应商建立共赢互惠的合作关系，打造绿色、可持续供应链。

VNET cannot achieve stable development without support from its partners. We build mutually beneficial cooperation with our suppliers to create a green and sustainable supply chain.

## 闭环采购管理

### Closed-Loop Procurement Management

世纪互联严格遵守国家法律法规及业内相关规定，通过《采购管理规定》《供应商管理细则》《采购人员行为规范》等制度明确采购各环节职责分工、规范采购人员行为、严格把控合作供应商交付质量，落实闭环的采购管理。本年度，集团对供应商关系管理（SRM）系统进行优化，实现线上供应商寻源、供应商认证及供应商全生命周期管理等功能，加强采购过程的可视化和可追溯化。

VNET strictly complies with national laws and regulations and relevant regulations of the industry. Through developing internal regulations such as *Regulations on Procurement Management*, *Rules on Supplier Management*, *Rules on Procurement Personnel Behavior*, we clearly define the responsibilities for each step of the procurement process, standardizes the behavior of procurement personnel, strictly controls the quality of suppliers, and implements closed-loop procurement management. In 2023, the Group has optimized Supplier Relationship Management (SRM) system, achieving online supplier sourcing, supplier certification and life cycle management for suppliers, while strengthening the visualization and traceability of the procurement process.

在供应商准入阶段，我们通过科学的评价考核体系，对供应商进行客观、公正的评价，筛选合格的供应商入围。我们亦通过划分“标准准入”和“快速准入”类别，优化准入流程，进一步实现供应商管理效率的提升。对于已有供应商，我们定期开展评审，对供应商服务意识、产品质量、履约能力等方面进行综合评估，以筛选出优质供应商。针对考核不达标的供应商，我们将其分类为整改供应商、不合格供应商、暂停合作供应商、供应商黑名单，以便更有针对性地帮助供应商解决问题。

During the supplier access stage, we objectively and fairly evaluate suppliers through a scientific assessment system, selecting qualified suppliers to enter the pool. We optimize the access process by distinguishing between "standard access" and "express access", further enhancing the efficiency of supplier management. For existing suppliers, we regularly conduct reviews and conduct comprehensive assessments on their service awareness, product quality, contract performance capability and other aspects to identify high-quality suppliers. For substandard suppliers, we classified them into rectifying suppliers, unqualified suppliers, suspended cooperation suppliers and blacklisted suppliers, helping substandard suppliers solve problems in a targeted manner.

截至报告期末，我们共拥有在库供应商 2,854 家，其中包括港澳台地区供应商 5 家、其他国家和地区供应商 5 家。

By the end of the reporting period, we had a total of 2,854 suppliers recorded in the database, including 5 from Hong Kong, Macau and Taiwan regions, and 5 from other countries and regions.

2,854 家

在库供应商数量

The number of suppliers in the database





## 可持续供应链 Sustainable Supply Chains

世纪互联致力于打造可持续的供应链体系，识别并防控采购环节可能发生的风险，从供应商入围资质审核、现场考察、内部评估测试、入围公示到入选等环节实施全链条审查模式，多维度评估考核供应商综合表现。

Committed to building a sustainable supply system, VNET identifies, prevents and controls the potential risks in procurement process. The comprehensive performance of suppliers is assessed from multiple perspectives based on a full-chain model integrating supplier qualification review, on-site inspection, internal assessment and testing, shortlist announcement and final selection.

我们对合作期间的供应商开展绩效评估，在保障采购需求、及时履行约定的同时，我们积极推动供应商提升可持续发展水平。在供应商管理的工作流程中，我们有针对性地加入对供应商 ESG 风险的考量，重点关注其在环保低碳、信息安全与隐私保护、劳工权益、职业健康安全及廉洁诚信方面的表现。

We evaluate the performance of suppliers during the period of cooperation. We aim to safeguard procurement needs and ensure obligation fulfillment while actively urging our suppliers to improve sustainability. In the work process of the supplier management, we incorporate considerations on their ESG risks and focus on their performance in environmental protection and low carbon, information security and privacy protection, labor rights and interests, occupational health and safety, as well as honesty and integrity.



**环保低碳**  
Environmental protection and low carbon

- 要求设备类供应商必须具备环境管理体系（ISO 14001）认证。  
Equipment suppliers are required to have the Environmental Management Systems (ISO 14001) certification.
- 优先考虑具备环境管理体系（ISO 14001）认证的供应商。  
We prefer suppliers with the Environmental Management Systems (ISO 14001).

**信息安全与隐私保护**  
Information security and privacy protection

- 与确认合作的供应商签订合同及《供应商保密协议》，明确信息与隐私的保密义务。  
We sign the contracts and the *Supplier Confidentiality Agreement* with suppliers who have confirmed the partnership with us to clarify information and privacy confidentiality obligations.

**劳工权益**  
Labor rights and interests

- 在供应商合同中对劳工权益进行规定，积极保障供应链员工的合法权益。  
We stipulate labor rights and interests in supplier contracts to actively protect the legitimate rights and interests of employees in the supply chain.

**职业健康安全**  
Occupational health and safety

- 要求设备类供应商必须具备职业健康安全管理体系（ISO 45001）认证。  
Equipment suppliers are required to have the Occupational Health and Safety Management Systems (ISO 45001) certification.
- 要求供应商遵守适用的安全规范，建立完善的职业健康保障体系，适时对其员工进行健康安全培训。  
Suppliers are required to comply with applicable safety regulations, establish a sound occupational health protection system, and provide health and safety training to their staff when appropriate.

**廉洁诚信**  
Honesty and integrity

- 针对采购人员开展专项反贪污培训，要求全体供应商签署《关于反商业贿赂行为的承诺书》，将不诚信供应商信息同步至中国企业反舞弊联盟数据库。  
We conduct anti-corruption training for procurement personnel. We also require all suppliers to sign the *Anti-bribery Commitment Letter* and synchronize the information of dishonest suppliers to the database of the China Enterprise Anti-Fraud Alliance.



# 负责任的企业公民 Responsible Corporate Citizen

世纪互联积极践行企业公民的社会责任。本年度，我们在生态保护、儿童公益等领域持续投入，开展多样化的公益项目，展现负责任企业公民的风采。

VNET actively fulfills its social responsibilities as a corporate citizen. This year, we continued to invest in fields such as ecological protection and children public welfare, and organized various public welfare programs to demonstrate our image as a responsible corporate citizen.

## 案例：公益义卖集市活动 Case: Charity Sale Event

2023年3月，世纪互联北京办公区举办义卖集市活动，将义卖收入的30%用于公益捐赠，此次活动共筹集到四千多元善款，全部用于为“光爱学校”（流浪及留守儿童公益学校）购买刚需物资，并由世纪互联员工代表奔赴“光爱学校”进行爱心捐赠，贡献我们的一份力量。

In March 2023, VNET's Beijing office held a charity sale event and donated 30% of the proceeds for public welfare. We raised over RMB 4,000 during this event. To contribute our strength, the money was donated to Guang Ai School, a public welfare school for homeless and left-behind children, by our employees' representatives to purchase highly-needed supplies.



北京光爱学校爱心捐赠  
Donation to Guang Ai School in Beijing

## 案例：世纪互联 2023 年植树活动 Case: VNET's Tree Planting Event in 2023

2023年3月，集团员工代表奔赴北京市延庆区开展植树活动，建成2023年世纪互联公益林。本次活动共计80余名员工参与，投入近400小时，栽种树苗200余棵，以实际行动为生态环境保护贡献力量。

In March 2023, the Group's employees went to Yanqing District in Beijing to conduct a tree planting event and build the 2023 VNET non-profit forest. Over 80 employees participated in this activity, where they spent nearly 400 hours planting over 200 saplings in an attempt to contribute to ecological environmental protection with practical actions.



世纪互联植树建设公益林  
VNET plants trees to build non-profit forest





# 附录

## Appendix

### 关于本报告

#### About this Report

感谢您阅读本集团（指世纪互联集团股份有限公司、其子公司，以及在描述我们的运营及合并财务资料时，亦包括我们的合并附属实体）《2023 年环境、社会及管治报告》。本报告全面阐述了我们在 ESG 方面的表现及管理举措，集中讨论利益相关方关注事项。

Thank you for reading the Group's (referring to VNET Group Inc., its subsidiaries, and, in the context of describing our operations and consolidated financial information, also include its consolidated affiliated entities) 2023 Environmental, Social and Governance Report (hereinafter referred to as "this Report"). This Report offers full visibility on our ESG performance and management measures in 2023, with a special focus on the concerns of key stakeholders.

#### 报告范围

##### Reporting Scope

除另有说明外，本报告涵盖期间为 2023 年 1 月 1 日至 2023 年 12 月 31 日，部分内容可能超出此时间范围。本报告纳入的实体与财务报告纳入的实体一致，我们定期审阅报告范围，以确保涵盖世纪互联整体业务组合的重大影响。

Unless otherwise specified, this Report covers information and data from January 1, 2023 to December 31, 2023. Part of the content may be beyond the above period. The entities included in this Report are consistent with those included in the financial report. We regularly review the reporting scope to ensure that this Report covers the significant impact of the overall business portfolio of the Group.

#### 编制参考

##### Reporting Reference

全球可持续发展标准委员会 Global Sustainability Standards Board, GSSB	GRI 可持续发展报告标准 GRI Sustainability Reporting Standards
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纳斯达克 National Association of Securities Dealers Automated Quotations, NASDAQ	ESG 报告指南 2.0 ESG Reporting Guide 2.0
---	---

气候相关财务信息披露小组 Task Force on Climate-related Financial Disclosures, TCFD	气候相关财务信息披露建议 The TCFD Recommendations on Climate-related Financial Disclosures
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国际倡议 International Initiatives	联合国全球契约（UNGC）十项原则 Ten Principles of the United Nations Global Compact
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	可持续发展目标（SDGs） Sustainable Development Goals, SDGs
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#### 数据来源与可靠性保障

##### Data Source and Reliability Assurance

报告遵循重要性、量化、平衡和一致性原则。报告使用数据来源包括政府部门公开数据、世纪互联内部文件及统计报表、第三方问卷调查等。报告经董事会审核后发布，世纪互联保证本报告内容不存在任何虚假记载、误导性陈述或重大遗漏。

This Report follows the principles of materiality, quantitative, balance and consistency. Data sources used in this Report include public data of government departments, internal documents and statistical reports of the Group, as well as third party questionnaires. This Report is released after being approved by the Board of Directors, and the Group undertakes that this Report does not contain any false or misleading statements or omissions of material facts herein.

#### 报告获取

##### Access to this Report

您可以在世纪互联网站 [www.vnet.com](http://www.vnet.com) 查阅和下载本报告的中英文版本。中、英文内容若有出入，请以中文内容为准。如对报告有疑问和建议，您可发邮件至 [esg@vnet.com](mailto:esg@vnet.com)。您的意见将帮助我们进一步完善本报告以及提升我们的 ESG 表现。

The Chinese and English versions of this Report are available at [www.vnet.com](http://www.vnet.com). Should there be any discrepancy between the Chinese and English contents, the Chinese contents shall prevail. If you have any questions or suggestions about this Report, please email to [esg@vnet.com](mailto:esg@vnet.com). Your feedback will help us further improve this Report and our ESG performance.



## 2023 年度关键绩效指标表

### 2023 Key Performance Indicators

#### 能源及水资源消耗<sup>1</sup>

#### Energy and Water Consumption<sup>1</sup>

能源消耗总量 <sup>2</sup> Total energy consumption <sup>2</sup>	兆瓦时 MWh	1,316,243.08
汽油 Gasoline	兆瓦时 MWh	237.03
柴油 Diesel	兆瓦时 MWh	1,826.06
电力消耗 <sup>3</sup> Electricity consumption <sup>3</sup>	兆瓦时 MWh	1,312,598.75
外购热力 Purchased heat	兆瓦时 MWh	1,581.24
可再生能源消耗总量 Total renewable energy consumption	兆瓦时 MWh	57,138.38
非可再生能源消耗总量 Total non-renewable energy consumption	兆瓦时 MWh	1,259,104.70
能源强度 Energy intensity	兆瓦时 / 千元美元收入 MWh / \$1,000 revenue	1.26
水资源消耗量 <sup>4</sup> Water consumption <sup>4</sup>	立方米 cubic meters	2,152,993.13
水资源强度 Water intensity	立方米 / 千元美元收入 cubic meters / \$1,000 revenue	2.06

注： 1. 数据包含世纪互联于 2023 年度已投运数据中心及办公场所，较 2022 年度统计范围有所扩大。

Notes: The data cover the data centers and offices that VNET put into operation in 2023, which means it has a larger statistical scope than that in 2022.

2. 能源消耗总量根据中华人民共和国国家标准《综合能耗计算通则 (GB/T 2589-2020)》中换算因子计算。  
Total energy consumption is calculated according to the conversion factor in the *General Principles for Calculation of the Comprehensive Energy Consumption (GB/T 2589-2020)* of the People's Republic of China.

3. 电力消耗包括自建光伏发电量、外购可再生电力和外购不可再生电力。  
Electricity consumption includes self-built photovoltaic power consumption, purchased renewable power and purchased non-renewable power.

4. 世纪互联用水主要来自市政自来水，在求取适用水源上无问题。  
The water mainly comes from municipal tap water, and there are no problems in obtaining suitable water source.

#### 温室气体排放<sup>1</sup>

#### Greenhouse Gas (GHG) Emissions<sup>1</sup>

温室气体排放总量 (基于地理位置) Total GHG emissions (location-based)	吨二氧化碳当量 tonnes CO <sub>2</sub> e	1,907,307.08
温室气体排放总量 (基于市场) Total GHG emissions (market-based)	吨二氧化碳当量 tonnes CO <sub>2</sub> e	1,860,799.02
范围一 Scope 1	吨二氧化碳当量 tonnes CO <sub>2</sub> e	27,891.96
范围二 (基于地理位置) Scope 2 (location-based)	吨二氧化碳当量 tonnes CO <sub>2</sub> e	1,064,264.59
范围二 (基于市场) Scope 2 (market-based)	吨二氧化碳当量 tonnes CO <sub>2</sub> e	1,017,756.53
范围三 Scope 3	吨二氧化碳当量 tonnes CO <sub>2</sub> e	815,150.53
外购商品和服务 Purchased goods and services	吨二氧化碳当量 tonnes CO <sub>2</sub> e	18,306.16
燃料和能源相关活动 Fuel- and energy-related activities	吨二氧化碳当量 tonnes CO <sub>2</sub> e	169,718.35
运营中产生的废弃物 Waste generated in operations	吨二氧化碳当量 tonnes CO <sub>2</sub> e	576.28
商务旅行 (飞机、火车) Business travel (airplane, railway)	吨二氧化碳当量 tonnes CO <sub>2</sub> e	335.13
雇员通勤 (班车) Employee commuting (shuttle bus)	吨二氧化碳当量 tonnes CO <sub>2</sub> e	174.71
上游租赁资产 Upstream leased assets	吨二氧化碳当量 tonnes CO <sub>2</sub> e	129,054.95
下游租赁资产 Downstream leased assets	吨二氧化碳当量 tonnes CO <sub>2</sub> e	496,984.95
温室气体排放强度 <sup>2</sup> (基于地理位置) GHG intensity <sup>2</sup> (location-based)	吨二氧化碳当量 / 千元美元收入 tonnes CO <sub>2</sub> e / \$1,000 revenue	1.05
温室气体排放强度 <sup>2</sup> (基于市场) GHG intensity <sup>2</sup> (market-based)	吨二氧化碳当量 / 千元美元收入 tonnes CO <sub>2</sub> e / \$1,000 revenue	1.00



注： 1. 温室气体排放计算说明：

Notes: Description of GHG emission calculations:

- 1) 2023年度盘查所涉及的温室气体种类包括：二氧化碳(CO<sub>2</sub>)、甲烷(CH<sub>4</sub>)、氧化亚氮(N<sub>2</sub>O)、氢氟碳化物(HFCs)、全氟碳化物(PFCs)、三氟化氮(NF<sub>3</sub>)和六氟化硫(SF<sub>6</sub>)等。经盘查，本报告期内涉及CO<sub>2</sub>、N<sub>2</sub>O、CH<sub>4</sub>、HFCs和SF<sub>6</sub>五种温室气体的排放。

The types of GHG involved in the 2023 inventory include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF<sub>3</sub>) and sulfur hexafluoride (SF<sub>6</sub>). After the inventory, five greenhouse gases, CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs and SF<sub>6</sub>, were involved in the emissions in this reporting period.

- 2) 计算标准：世纪互联依据 ISO 14064-1:2018《组织层次上对温室气体排放和清除的量化和报告的规范及指南》《世界资源研究所(WRI)/世界可持续发展工商理事会(WBCSD)温室气体核算体系-企业核算与报告标准(范围一和范围二)》《WRI/WBCSD温室气体核算体系-企业价值链(范围三)核算与报告标准》及其他适用的法律法规及相关标准，对2023年度内的温室气体排放总量进行盘查。

Calculation standard: VNET has conducted an inventory of GHG emissions within 2023 in accordance with ISO 14064-1:2018 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals, World Resources Institute (WRI) / The World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol - Corporate Accounting and Reporting Standard (Scope 1 and Scope 2), WRI/WBCSD Greenhouse Gas Protocol - Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and other applicable laws and regulations and related standards to conduct an inventory of total GHG emissions in 2023.

- 3) 排放因子：来源于《联合国政府间气候变化专门委员会(IPCC)2006年国家温室气体清单指南2019修订版》、国家发展和改革委员会应对气候变化司《2012年中国区域电网平均二氧化碳排放因子》《IPCC第六次评估报告》《中国产品全生命周期温室气体排放系数集(2022)》以及其他权威参考文献。

Emission factors: Derived from Intergovernmental Panel on Climate Change (IPCC) 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the Department of Climate Change of National Development and Reform Commission 2012 Average Emission Factors for Regional Power Grids in China, IPCC Sixth Assessment Report, China Products Carbon Footprint Factors Database (2022) and other authoritative reference documents.

- 4) 统计范围：数据包含世纪互联于2023年度已投运数据中心及办公场所，较2022年度统计范围有所扩大。

Statistical scope: The data cover the data centers and offices that VNET put into operation in 2023, which means a larger statistical scope than that in 2022.

- 5) 一致性说明：范围三数据较2022年度增加外购商品和服务、燃料和能源相关活动、运营中产生的废弃物三个类别。

Consistency note: Scope 3 data has been expanded from the 2022 scope to include three additional categories of purchased goods and services, fuel- and energy-related activities, and waste generated in operations.

- 6) 范围一对应ISO 14064-1类别一，范围二对应其类别二，范围三对应其类别三至类别六的合计值。

The Scope 1 corresponds to Category 1 of ISO 14064-1, the Scope 2 corresponds to Category 2, and the Scope 3 corresponds to the aggregate value of Categories 3 to 6.

2. 计算温室气体排放强度时使用范围一及范围二温室气体排放量。

GHG intensity are calculated based on the total of Scope 1 and 2.

## 废弃物 Waste

一般废弃物 <sup>1</sup> General waste <sup>1</sup>	千克 kg	373,152.18
有害废弃物 <sup>2</sup> Hazardous waste <sup>2</sup>	千克 kg	879,048.80

注： 1. 一般废弃物类型主要包括废弃电子设备和废弃车辆，均由回收商进行回收处置。

Notes: General waste mainly include abandoned electronic equipment and abandoned vehicles, which are recycled and disposed of by recyclers.

2. 集团运营涉及的有害废弃物类型主要包括废弃铅酸蓄电池，均交由有资质的回收商进行回收处置。

Hazardous waste involved in the Group's operations mainly include waste lead-acid batteries, which are all recycled and disposed of by qualified recyclers.

## 商业道德 Business Ethics

违反员工行为准则的腐败或贿赂事件数量 Number of incidents of corruption or bribery in violation of employee codes of conduct	起 Event	0
腐败事件数量 Number of corruption incidents	起 Event	0
由于与腐败有关的违规事件，与业务合作伙伴的合同被终止或续订，且经确认的事件总数 Total number of confirmed incidents in which contracts with business partners were terminated or not renewed owing to corruption-related irregularities	起 Event	0
对集团或集团员工提出并已审结的贪污诉讼案件数目 Number of concluded legal cases regarding corrupt practices brought against the Group or its employees	起 Event	0
董事及员工反贪腐培训覆盖率 Coverage of anti-corruption training for directors and employees	%	100
反竞争的商业行为案件数量 Number of cases of anti-competitive business behaviour	起 Event	0
反竞争的商业行为导致的罚款金额 Amount of fines resulting from anti-competitive business behaviour	人民币元 RMB	0
商业秘密泄露事件数量 Number of trade secret leakage incidents	起 Event	0
歧视及骚扰事件数量 Number of discrimination and harassment incidents	起 Event	0

## 供应商 Suppliers

供应商总数 Number of suppliers	个 Number	2,854
中国境内供应商数量 Chinese mainland	个 Number	2,844
港澳台地区供应商数量 Hong Kong, Macao and Taiwan	个 Number	5
其他国家和地区供应商数量 Other countries and regions	个 Number	5



## 客户服务 Customer Services

全国客户满意度 National customer satisfaction	%	99.81
客户服务热线接听率 Customer service hotline call answer rate	%	97.63
客户服务热线服务水平 <sup>1</sup> Customer service hotline service level <sup>1</sup>	%	96.77
客户话后满意度 Customer satisfaction after the call	%	100
接获客户投诉总数量 Number of customer complaints	起 Event	1
侵犯客户隐私和丢失客户资料的经证实的投诉数量 Number of substantiated complaints concerning breaches of customer privacy and losses of customer data	起 Event	0
客户投诉解决满意率 Customer complaint resolution satisfaction	%	100
大型 IDC 运营中断事件 Major IDC operational disruptions	起 Event	0
大型 IDC 网络中断事件 Major IDC network outages	起 Event	0

注： 1. 客户服务热线服务水平 = 20 秒内电话接起量 / 系统来电量 × 100%

Notes: Customer service hotline service level = Number of calls picked up in 20s / Total number of incoming calls × 100%

## 信息安全与隐私保护 Information Security and Privacy Protection

重大信息安全事件数量 <sup>1</sup> Number of major information security incidents <sup>1</sup>	起 Event	0
受重大信息安全事件影响的客户、顾客和员工总数 Total number of clients, customers and employees affected by major information security incidents	人 Person	0
员工信息安全受训比例 Training coverage of information security for employees	%	100
信息安全管理认证 (ISO/IEC 27001) 覆盖场所个数 Number of sites covered by Information Security Management Systems Certification (ISO/IEC 27001)	个 Number	14

注： 1. 行业监管机构违规通报事件。

Notes: Incidents of non-compliance notification by industry regulators.

## 雇佣 Employment

	总计 Total	女性 Female	男性 Male	女性占比 Female percentage	
按雇佣级别及性别划分 (人) By management level and gender (Person)					
总计 Total	3,038	848	2,190	28%	
管理岗位 Management position	880	277	603	31%	
非管理岗位 Non-management position	2,158	571	1,587	26%	
按年龄划分 (人) By age group (Person)	≤ 30	30-50	≥ 50		
	939	2,002	97		
按工作地划分 (人) By region (Person)	中国境内 Chinese mainland	港澳台地区 Hong Kong, Macao and Taiwan regions	其他国家和地区 Other countries and regions		
	2,922	114	2		
按民族 <sup>1</sup> 划分 (人) By ethnicity <sup>1</sup> (Person)	少数民族 Minority nationality	非少数民族 Non-minority nationality	少数民族占比 Minority nationality percentage	少数民族在管理岗位占比 Percentage of minorities in management positions	非少数民族在管理岗位占比 Percentage of non-minorities in management positions
	129	2,784	4%	5%	95%
女性多元化指标 Female diversity indicators	女性在初级管理岗位占比 Percentage of women in junior management positions	女性在高级管理岗位占比 Percentage of women in senior management positions	女性在收入创造管理岗位占比 Percentage of women in income-generating management positions	女性在 STEM <sup>2</sup> 岗位占比 Percentage of women in STEM <sup>2</sup> positions	
	33%	18%	21%	13%	
员工平均受雇年限 (年) Average employee tenure (Year)	女性 Female	男性 Male			
	4.51	4.25			

注： 1. 按民族划分数据仅包含户籍在中国境内的员工。

Notes: The data by ethnicity only includes employees whose registered residence is within Chinese mainland.

2. STEM 指科学、技术、工程和数学。

STEM means Science, Technology, Engineering and Mathematics.



## 新进 Recruitment

新进员工总数 (人) Total number of new hires (Person)		426		
由内部员工填补空缺岗位的比例 Percentage of open positions filled by internal candidates		32%		
		女性 Female	男性 Male	
按性别划分 By gender	新进人数 (人) Number of new hires (Person)	103	323	
	新进比例 Percentage of new hires	24%	76%	
		≤ 30	30-50	≥ 50
按年龄划分 By age group	新进人数 (人) Number of new hires (Person)	250	162	14
	新进比例 Percentage of new hires	59%	38%	3%
		中国境内 Chinese mainland	港澳台地区 Hong Kong, Macao and Taiwan regions	其他国家和地区 Other countries and regions
按工作地划分 By region	新进人数 (人) Number of new hires (Person)	407	19	0
	新进比例 Percentage of new hires	96%	4%	0%

## 离职 Turnover

离职员工总数 (人) Total number of turnover (Person)		720		
总离职率 Turnover rate		20%		
		女性 Female	男性 Male	
按性别划分 By gender	离职人数 (人) Number of turnover (Person)	183	537	
	离职率 Turnover rate	18%	20%	
		≤ 30	30-50	≥ 50
按年龄划分 By age group	离职人数 (人) Number of turnover (Person)	300	393	27
	离职率 Turnover rate	25%	17%	22%
		中国境内 Chinese mainland	港澳台地区 Hong Kong, Macao and Taiwan regions	其他国家和地区 Other countries and regions
按工作地划分 By region	离职人数 (人) Number of turnover (Person)	687	33	0
	离职率 Turnover rate	19%	23%	0%

## 育儿类假期 Parental Leave

有权享有育儿类假期 <sup>1</sup> 的员工总数 Employees that were entitled to parental leave <sup>1</sup>		3,038		
		总计 Total	女性 Female	男性 Male
育儿类假期的员工总数 (人) Number of employees that took parental leave (Person)		241	95	146
按性别划分 By gender	员工育儿类假期的周数 <sup>2</sup> (周) Number of parental leave <sup>2</sup> in weeks (Week)	1,257	1,005	252
	返岗率 <sup>3</sup> Return to work rates of employees that took parental leave <sup>3</sup>	100%	100%	100%
留任率 <sup>4</sup> Retention rates of employees that took parental leave <sup>4</sup>		85%	75%	91%

- 注: 1. 育儿类假期包含带薪的产假、陪产假及中国境内于 2021 年 11 月始推行的育儿假。  
Notes: Parental leave includes paid maternity leave, paid paternity leave and an extended paid parental leave that has been promoted within Chinese mainland since November 2021.
2. 育儿类假期的周数指员工实际休产假、陪产假及育儿假的总周数。集团严格遵循运营当地法律法规要求, 为符合条件的员工提供产假、陪产假、育儿假等员工应享有的假期。以北京地区为例, 女性员工享有约 26 周的育儿类假期, 男性员工享有约 5 周的育儿类假期。  
Number of parental leave in weeks means the total weeks of maternity leave, paternity leave and extended parental leave actually taken by the employee. The Group strictly complies with the requirements of local laws and regulations and provides eligible employees with maternity leave, paternity leave, extended parental leave and other leaves to which employees are entitled. In Beijing, for example, female employees are entitled to approximately 26 weeks of parental leave and male employees are entitled to approximately 5 weeks of parental leave.
3. 返岗率是指产假或陪产假结束后返岗的人员比率。  
Return to work rates refers to the percentage of people returning to work after their maternity or paternity leave end.
4. 留任率是指产假或陪产假结束后返岗且 12 个月后仍在职的人员比率。  
Retention rate refers to the percentage of employees who have returned to work after the maternity or paternity leave and are still in service after 12 months.



## 健康与安全 Health and Safety

		2021	2022	2023
因工死亡人数 Number of work-related fatalities	人 Person	0	0	0
因工死亡比率 Rate of work-related fatalities	%	0	0	0
可记录工伤事件数 <sup>1</sup> Number of work-related injury incidents which can be recorded <sup>1</sup>	起 Event	-	2	6 <sup>2</sup>
因工伤损失工作日数 Number of working days lost due to work-related injury	天 Day	1	6	189
20万小时可记录工伤事故率 (TRIR) <sup>1</sup> Total recordable incident rate (TRIR) (per 200,000 hours worked) <sup>1</sup>	-	-	0.06	0.20
员工缺勤率 <sup>3</sup> Absentee rate <sup>3</sup>	%	0.63	0.70	0.95

注： 1. 自 2022 年起开始披露可记录工伤事件数及 20 万小时可记录工伤事故率 (TRIR) 数据。  
Notes: Since 2022, the number of work-related injury incidents which can be recorded and the total recordable incident rate (TRIR) (per 200,000 hours worked) data have been disclosed.

2. 2023 年可记录工伤事件数中有 1 起为员工工作期间外出办事崴脚骨折，1 起为员工工作期间腰椎扭伤，4 起为员工上下班通勤途中发生交通事故。  
In 2023, the number of work-related injury incidents which can be recorded included one fracture of an employee's ankle while running errands, one sprain of an employee's lumbar spine while at work, and four traffic accidents while commuting to and from work.

3. 缺勤天数包括因工伤损失工作日数、因轻微疾病（例如普通感冒、发烧和流感）及未公开原因而申请的个人病假，不包括年假、培训学习假、产假或陪产假等。  
The number of days of absenteeism includes the number of working days lost due to work-related injury, personal sick leave claimed due to minor illnesses (e.g., common cold, fever and influenza) and undisclosed reasons. It does not include annual leave, training and study leave, maternity or paternity leave, etc.

## 员工培训 Training

		总计 Total	女性 Female	男性 Male
按性别划分 By gender	受训比例 Training coverage	100%	26%	74%
	受训平均时数 (小时) Average training hours (Hour)	29.36	33.96	27.79
		总计 Total	管理岗位 Management position	非管理岗位 Non-management position
按雇佣级别划分 By management level	受训比例 Training coverage	100%	22%	78%
	受训平均时数 (小时) Average training hours (Hour)	29.36	29.28	29.38

## GRI 内容索引 GRI Content Index

使用说明：  
Statement of use:

世纪互联集团股份有限公司在 2023 年 1 月 1 日至 2023 年 12 月 31 日参照 GRI 标准报告了在此份 GRI 内容索引中引用的信息。  
VNET Group, Inc. has reported the information cited in this GRI content index for the period between January 1, 2023 and December 31, 2023 with reference to the GRI Standards.

使用的 GRI 1: 基础 2021  
GRI 1 used: Foundation 2021

GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
GRI 2: 一般披露 2021 GRI 2: General Disclosures 2021			
1. 组织及其报告做法 The organization and its reporting practices	2-1 组织详细情况 Organizational details	P3-4	请参见 2023 Form 20-F See the 2023 Form 20-F for details.
	2-2 纳入组织可持续发展报告的实体 Entities included in the organization's sustainability reporting	P119	
	2-3 报告期、报告频率和联系人 Reporting period, frequency and contact point	P119-120	
	2-4 信息重述 Restatements of information	-	报告期内无重述。 No restatements were made during the reporting period.
	2-5 外部鉴证 External assurance	P141-146	
2. 活动和工作者 Activities and workers	2-6 活动、价值链和其他业务关系 Activities, value chain and other business relationships	P3-4, P114-116	
	2-7 员工 Employee	P126	
	2-8 员工之外的工作者 Workers who are not employees	P106-111	



GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
3. 管治 Governance	2-9 管治架构和组成 Governance structure and composition	P25-26, P11-12	
	2-10 最高管治机构的提名和遴选 Nomination and selection of the highest governance body	-	请参见《提名及公司治理委员会章程》 See the <i>Charter of Nominating and Corporate Governance Committee</i> for details.
	2-11 最高管治机构的主席 Chair of the highest governance body	P25-26	
	2-12 在管理影响方面，最高管治机构的监督作用 Role of the highest governance body in overseeing the management of impacts	P25-26, P11-12, P19-22	
	2-13 为管理影响的责任授权 Delegation of responsibility for managing impacts	P11-12	
	2-14 最高管治机构在可持续发展报告中的作用 Role of the highest governance body in sustainability reporting	P11-12, P21-22, P119-120	
	2-15 利益冲突 Conflicts of interest		请参见 2023 Form 20-F See the 2023 Form 20-F for details.
	2-16 重要关切问题的沟通 Communication of critical concerns	P19-22, P27-28, P34-36	
	2-17 最高管治机构的共同知识 Collective knowledge of the highest governance body	P25-26, P29, P32-33	
	2-18 对最高管治机构的绩效评估 Evaluation of the performance of the highest governance body	-	请参见《董事会薪酬委员会章程》 See the <i>Charter of the Remuneration Committee of the Board of Directors</i> for details.
	2-19 薪酬政策 Remuneration policies	-	请参见 2023 Form 20-F See the 2023 Form 20-F for details.
	2-20 确定薪酬的程序 Process to determine remuneration	-	请参见《董事会薪酬委员会章程》 See the <i>Charter of the Remuneration Committee of the Board of Directors</i> for details.
	2-21 年度总薪酬比率 Annual total compensation ratio	-	保密限制：此类披露属商业及竞争敏感信息及员工个人的隐私信息，因此不予披露。 Confidentiality Restriction: Such disclosure is commercial and competitive sensitive information and personal privacy information of employees, and therefore will not be disclosed.

GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
4. 战略、政策和实践 Strategy, policies and practices	2-22 关于可持续发展战略的声明 Statement on sustainable development strategy	P13-14, P42	
	2-23 政策承诺 Policy commitments	P119-120	
	2-24 融合政策承诺 Embedding policy commitments	P11-18	
	2-25 补救负面影响的程序 Processes to remediate negative impacts	P34-36	
	2-26 寻求建议和提出关切的机制 Mechanisms for seeking advice and raising concerns	P34-36	
	2-27 遵守法律法规 Compliance with laws and regulations	P124-125	
	2-28 协会的成员资格 Membership associations	P32-33, P96-97, P119-120	
	2-29 利益相关方参与的方法 Approach to stakeholder engagement	P19-20	
	2-30 集体谈判协议 Collective bargaining agreements	P98	
	GRI 3: 实质性议题 2021 GRI 3: Material Topics 2021		
3-1	确定实质性议题的过程 Process to determine material topics	P21-22	
3-2	实质性议题清单 List of material topics	P21-22	
3-3	实质性议题的管理 Management of material topics	-	请参见下表。 Please refer to the following table.



GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
<b>GRI 201: 经济绩效 2016</b> GRI 201: Economic Performance 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对经济绩效的管理方法 How it manages economic performance	-	请参见 2023 Form 20-F See the 2023 Form 20-F for details
议题披露项 Topic disclosures	201-1 直接产生和分配的经济价值 201-1 Direct economic value generated and distributed	-	请参见 2023 Form 20-F See the 2023 Form 20-F for details
	201-2 气候变化带来的财务影响以及其他风险和机遇 201-2 Financial implications and other risks and opportunities due to climate change	P49-56	
	201-3 固定福利计划义务和其他退休计划 201-3 Defined benefit plan obligations and other retirement plans	-	请参见 2023 Form 20-F See the 2023 Form 20-F for details
<b>GRI 203: 间接经济影响 2016</b> GRI 203: Indirect Economic Impacts 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对间接经济影响的管理方法 How it manages indirect economic impacts	P77-80, P81-84	
议题披露项 Topic disclosures	203-1 基础设施投资和支持性服务 203-1 Infrastructure investments and services supported	P77-80, P81-84	
<b>GRI 205: 反腐败 2016</b> GRI 205: Anti-corruption 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对反腐败的管理方法 How it manages anti-corruption	P32-36	
议题披露项 Topic disclosures	205-1 已进行腐败风险评估的运营点 205-1 Operations assessed for risks related to corruption	P32-33	
	205-2 反腐败政策和程序的传达及培训 205-2 Communication and training about anti-corruption policies and procedures	P32-33	
	205-3 经确认的腐败事件和采取的行动 205-3 Confirmed incidents of corruption and actions taken	P124	

GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
<b>GRI 206: 反竞争行为 2016</b> GRI 206: Anti-competitive Behavior 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对反竞争行为的管理方法 How it manages anti-competitive behavior	P30-36	
议题披露项 Topic disclosures	206-1 针对反竞争行为、反托拉斯和反垄断实践的法律诉讼 206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	P124	
<b>环境准则</b> Environmental Standards			
<b>GRI 302: 能源 2016</b> GRI 302: Energy 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对能源的管理方法 How it manages energy	P65-72	
议题披露项 Topic disclosures	302-1 组织内部的能源消耗量 302-1 Energy consumption within the organization	P121	
	302-3 能源强度 302-3 Energy intensity	P121	
	302-4 降低能源消耗量 302-4 Reduction of energy consumption	P65-72	
	302-5 降低产品和服务的能源需求量 302-5 Reductions in energy requirements of products and services	P65-72	
	<b>GRI 303: 水资源和污水 2018</b> GRI 303: Water and Effluents 2018		
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对水资源和污水的管理方法 How it manages water and effluents using	P63-64, P73	
议题披露项 Topic disclosures	303-1 组织与水作为共有资源的相互影响 303-1 Interactions with water as a shared resource	P73	
	303-2 管理与排水相关的影响 303-2 Management of water discharge-related impacts	P63-64	
	303-3 取水 303-3 Water withdrawal	P73, P121	



GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
GRI 304: 生物多样性 2016 GRI 304: Biodiversity 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对生物多样性的管理方法 How it manages biodiversity	P59	
议题披露项 Topic disclosures	304-1 组织在位于或邻近保护区和保护区外的生物多样性丰富区域拥有、租赁、管理的运营点 304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	P59	
GRI 305: 排放 2016 GRI 305: Emissions 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对排放的管理方法 How it manages emissions	P42	
议题披露项 Topic disclosures	305-1 直接（范围 1）温室气体排放 305-1 Direct (Scope 1) GHG emissions	P122	
	305-2 能源间接（范围 2）温室气体排放 305-2 Energy indirect (Scope 2) GHG emissions	P122	
	305-3 其他间接（范围 3）温室气体排放 305-3 Other indirect (Scope 3) GHG emissions	P122	
	305-4 温室气体排放强度 305-4 GHG emissions intensity	P122	
	305-5 温室气体减排量 305-5 Reduction of GHG emissions	P65-72	
	305-7 氮氧化物 (NO <sub>x</sub> )、硫氧化物 (SO <sub>x</sub> ) 和其他重大气体排放 305-7 Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	-	本年度，氮氧化物 (NO <sub>x</sub> ) 排放量为 5.050 吨，硫氧化物 (SO <sub>x</sub> ) 排放量为 0.003 吨。 During the year, emissions of nitrogen oxides (NO <sub>x</sub> ) were 5.050 tonnes and emissions of sulfur oxides (SO <sub>x</sub> ) were 0.003 tonnes.

GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
GRI 306: 废弃物 2020 GRI 306: Waste 2020			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对废弃物的管理方法 How it manages waste	P74	
议题披露项 Topic disclosures	306-1 废弃物的产生及废弃物相关重大影响 306-1 Waste generation and significant waste-related impacts	P74	
	306-2 废弃物相关重大影响的管理 306-2 Management of significant waste-related impacts	P74	
	306-3 产生的废弃物 306-3 Waste generated	P123	
GRI 308: 供应商环境评估 2016 GRI 308: Supplier Environmental Assessment 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对供应商环境评估的管理方法 How it manages supplier environmental assessment	P114-116	
议题披露项 Topic disclosures	308-1 使用环境评价维度筛选的新供应商 308-1 New suppliers that were screened using environmental criteria	P114-116	
	308-2 供应链的负面环境影响以及采取的行动 308-2 Negative environmental impacts in the supply chains and actions taken	P114-116	
社会准则 Social Standards			
GRI 401: 雇佣 2016 GRI 401: Employment 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对雇佣的管理方法 How it manages employment	P95-105	
议题披露项 Topic disclosures	401-1 新进员工雇佣率和员工流动率 401-1 New employee hires and employee turnover	P126-127	



GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
议题披露项 Topic disclosures	401-2 提供给全职员工(不包括临时或兼职员工)的福利 401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	P103-105	
	401-3 育儿假 401-3 Parental leave	P128	
GRI 403: 职业健康与安全 2018 GRI 403: Occupational Health and Safety 2018			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对职业健康与安全的管理方法 How it manages occupational health and safety	P99-102	
议题披露项 Topic disclosures	403-1 职业健康安全管理体系 403-1 Occupational health and safety management system	P99-102	
	403-2 危害识别、风险评估和事故调查 403-2 Hazard identification, risk assessment, and incident investigation	P34-36, P98-101	
	403-3 职业健康服务 403-3 Occupational health services	P102	
	403-4 职业健康安全事务: 工作者的参与、意见征询和沟通 403-4 Worker participation, consultation, and communication on occupational health and safety	P98	
	403-5 工作者职业健康安全培训 403-5 Worker training on occupational health and safety	P100	
	403-6 促进工作者健康 403-6 Promotion of worker health	P102	

GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
议题披露项 Topic disclosures	403-7 预防和减缓与业务关系直接相关的职业健康安全影响 403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	P100	
	403-8 职业健康安全管理体系覆盖的工作者 403-8 Workers covered by an occupational health and safety management system	P99-102	
	403-9 工伤 403-9 Work-related injuries	P99-102, P129	
议题披露项 Topic disclosures	403-10 工作相关的健康问题 403-10 Work-related ill health	P99-102, P129	
	GRI 404: 培训与教育 2016 GRI 404: Training and Education 2016		
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对培训与教育的管理方法 How it manages training and education	P106-111	
议题披露项 Topic disclosures	404-1 每名员工每年接受培训的平均小时数 404-1 Average hours of training per year per employee	P129	
	404-2 员工技能提升方案和过渡援助方案 404-2 Programs for upgrading employee skills and transition assistance programs	P106-113	
	404-3 定期接受绩效和职业发展考核的员工百分比 404-3 Percentage of employees receiving regular performance and career development reviews	P111-112	



GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
GRI 405: 多元化与平等机会 2016 GRI 405: Diversity and Equal Opportunity 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对多元化与平等机会的管理方法 How it manages diversity and equal opportunity	P96-97	
议题披露项 Topic disclosures	405-1 管治机构与员工的多元化 405-1 Diversity of governance bodies and employees	P25-26, P126	
	405-2 男女基本工资和报酬的比例 405-2 Ratio of basic salary and remuneration of women to men	P96-97	
GRI 406: 反歧视 2016 GRI 406: Non-discrimination 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对反歧视的管理方法 How it manages non-discrimination	P95-98	
议题披露项 Topic disclosures	406-1 歧视事件及采取的纠正行动 406-1 Incidents of discrimination and corrective actions taken	P95-98, P124	
GRI 408: 童工 2016 GRI 408: Child Labor 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对童工的管理方法 How it manages child labor	P95-96	
议题披露项 Topic disclosures	408-1 具有重大童工事件风险的运营点和供应商 408-1 Operations and suppliers at significant risk for incidents of child labor	P95-96	

GRI 标准 GRI Standard	披露项 Disclosure	页码 Page	补充信息及从略说明 Additional information
GRI 409: 强迫或强制劳动 2016 GRI 409: Forced or Compulsory Labor 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对强迫或强制劳动方面的管理方法 How it manages forced or compulsory labor	P95-96	
议题披露项 Topic disclosures	409-1 具有强迫或强制劳动事件重大风险的运营点和供应商 409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	P95-96	
GRI 414: 供应商社会评估 2016 GRI 414: Supplier Social Assessment 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对供应商社会评估的管理方法 How it manages supplier social assessment	P114-116	
议题披露项 Topic disclosures	414-1 使用社会标准筛选的新供应商 414-1 New suppliers that were screened using social criteria	P114-116	
	414-2 供应链的负面社会影响以及采取的行动 414-2 Negative social impacts in the supply chain and actions taken	P114-116	
GRI 418: 客户隐私 2016 GRI 418: Customer Privacy 2016			
GRI 3: 议题管理披露项 GRI 3: Topic management disclosures	对客户隐私的管理方法 How it manages customer privacy	P85-92	
议题披露项 Topic disclosures	418-1 涉及侵犯客户隐私和丢失客户资料的经证实的投诉 418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	P125	



## 独立审验声明

### Independent Assurance Statement



### 独立审验声明

#### 简介

莱茵技术（上海）有限公司，是德国莱茵 TÜV 集团成员之一（以下简称“TÜV 莱茵”或“我们”），受世纪互联集团股份有限公司（以下简称“世纪互联”或“公司”）管理方委托对其 2023 年环境、社会及管治报告（以下简称“报告”）进行外部审验。本次审验合同中规定的所有审验内容完全取决于世纪互联。我们的任务是对其报告做出公正和恰当的判断。

本声明的预期读者是关注世纪互联在2023年度（2023年1月1日至2023年12月31日）环境、社会及管治绩效以及影响其业务活动的利益相关方。

TÜV莱茵是一家世界性的服务供应商，在超过65个国家提供企业社会责任和可持续发展服务，并拥有在企业可持续发展、环境、社会责任和利益相关方参与等领域的资深专家。此次审验过程中，我们审验团队完全保持公正和独立，并不参与报告内容的准备。

#### 审验标准

TÜV莱茵依据AccountAbility AA1000审验标准 v3（AA1000AS v3）中度审验的要求来实施本次审验工作。

#### 审验范围和类型

我们遵循 AA1000 审验标准 v3，类型-2 和中等等级，来审验世纪互联报告披露的环境、社会及管治相关的信息和数据，包括特定绩效信息（含能源消耗总量（兆瓦时）、可再生能源消耗总量（兆瓦时）、非可再生能源消耗总量（兆瓦时）、水资源消耗量（立方米）、温室气体排放总量（吨二氧化碳当量）、温室气体排放强度（吨二氧化碳当量/ 千美元收入）、废弃物（千克）、员工缺勤率（%）、男女员工薪酬比率）。

下列审验准则也用于实施本次审验工作：

- 参考全球可持续发展标准委员会的《可持续发展报告标准（GRI Standards）》
- 联合国可持续发展目标（UN SDGs）
- ISO 14064-1:2018，以及《组织层次上对温室气体排放和清除的量化和报告的规范及指南》、《世界资源研究所（WRI）/ 世界可持续发展工商理事会（WBCSD）温室气体核算体系 —— 企业核算与报告标准（范围一和范围二）》、《WRI / WBCSD 温室气体核算体系 —— 企业价值链（范围三）核算与报告标准》
- 遵循 AA1000 审验原则，即，包容性、实质性、回应性和影响性

#### 审验方法

我们的审验活动包括以下内容：

- 审查公司管理实践与流程，来评估环境、社会和治理体系，其中包括 ESG 战略、公司治理、风险管理、利益相关方沟通、实质性议题分析、以及关键绩效。
- 访谈公司管理层以及负责 ESG 绩效信息采集和统计的管理人员。
- 基于抽样原则，对公司下属的位于中国北京、南通和广州的数据中心进行现场评估，涉及报告披露的关键运营管理流程，其中包括特定绩效信息及其采集流程。



### Independent Assurance Statement

#### Introduction

TÜV Rheinland (Shanghai) Co., Ltd., member of TÜV Rheinland Group, Germany (hereinafter “TÜV Rheinland”, “We”) has been entrusted by the management of VNET Group, Inc. (hereinafter “VNET”, “the Company”) to conduct independent assurance of its 2023 Environmental, Social and Governance (ESG) report (hereinafter “the Report”). All contractual contents for this assurance engagement rest entirely within the responsibility of VNET. Our task was to give a fair and adequate judgment on the Report.

The intended users of this assurance statement are stakeholders who have relevance to VNET’s environmental, social and governance performance and impacts of its business activities during year 2023 (1 January 2023 ~ 31 December 2023).

TÜV Rheinland is a global service provider of Corporate Social Responsibility (CSR) & Sustainability Services in over 65 countries, having qualified professionals in the field of Corporate Sustainability Assurance, Environment, Social and Stakeholder Engagement. We have maintained complete impartiality and independence during the assurance engagement, and we were not involved in the preparation of the Report contents.

#### Assurance Standard

TÜV Rheinland undertook the assurance work in accordance with the AA1000 Assurance Standard v3 (AA1000AS v3) Moderate level of assurance.

#### Scope & Type of Assurance

Our assurance engagement was carried out in accordance with the AA1000AS v3, Type 2, Moderate level on VNET’s ESG-related information and data disclosed in the Report, including assessment of reliability of specified performance information (Total energy consumption (MWh), Total renewable energy consumption (MWh), Total non-renewable energy consumption (MWh), Water consumption (cubic meters), Total GHG emissions (tonnes CO<sub>2</sub>e), GHG intensity (tonnes CO<sub>2</sub>e / \$1,000 revenue), Waste (kg), Absentee rate (%), Gender pay gap). The following assurance criteria were used in performing the assurance work:

- By reference to GRI Sustainability Reporting Standards (GRI Standards)
- The United Nations Sustainable Development Goals (UN SDGs)
- ISO 14064-1:2018, Greenhouse Gas Protocol (GHG Protocol) (WRI & WBCSD)
- Adherence to the AA1000 AccountAbility Principles of *Inclusivity, Materiality, Responsiveness, and Impact*.

#### Assurance Methodology

Our assurance activities included:

- Reviewing the company’s management practices and processes to evaluate ESG management system, including ESG strategy, corporate governance, risk management, stakeholder communication, material issue analysis, and ESG-related key performance.
- Interviews with company management and personnels responsible for collecting and aggregating ESG-related performance information.
- Conducting on-site audits of the company’s data centers located in Beijing, Nantong, and Guangzhou, China based on the sampling principle, which involves the key operational management processes disclosed in the report, including specified performance information and its gathering process.
- Reviewing, examining and testing ESG management practices, performance information and data calculations, and evidence collection from source to aggregation based on sampling principles and application of analytical procedures to ensure the completeness and accuracy of the information.
- Evaluating the quality of specified performance information selected by the company to ensure that its disclosures are consistent with assurance observations.





- 基于抽样原则和应用分析程序，审阅、检查与测试 ESG 管理实践、绩效信息与数据计算、以及从信息源头到汇总的证据收集过程，以充分保证信息的完整性和准确性。
- 评估公司选择的特定绩效信息的质量，以确保其披露与审阅观察是一致的。
- 收集与评估支持性书面证据和管理呈现以支持其遵循审阅原则的程度。

## 局限性

TÜV 莱茵依据审阅协议定义的范畴，以及基于 AA1000AS v3 中度等级来实施本次审阅。与审阅有关的信息和绩效数据包括已选择的特定绩效信息会局限于本报告的内容披露。

中度审阅的程序在本质上与高度审阅是有区别的，且低于高度审阅的保证程度。

我们的审阅工作未涵盖财务年报及其财务数据，且并不包括超出本次审阅工作范围的其他可持续发展主题或事项。

## 审核结论

基于上述审阅方法和评估范畴内的活动，我们可以得出结论，在审阅过程中，没有任何实例和信息与下述声明有所抵触：

- 世纪互联 2023 年环境、社会及管治报告及其内容遵循了 AA1000 审阅原则。
- 世纪互联已实施相关管理流程用于收集和汇总在报告边界内与实质性议题有关的关键绩效数据，同时，公司对实质性议题进行了识别、评估、界定和管理。
- 本期报告披露的 ESG 有关信息和绩效指标已经过评估，且获得书面证据的支持，能真实地反映世纪互联在 ESG 领域的管理实践。

针对任何第三方依据此份审阅声明来对世纪互联做出的评论和相关决定，TÜV 莱茵将不承担任何责任。

## 对 AA1000 审阅原则的遵守

**包容性：**世纪互联已识别的主要利益相关方包括政府及监管机构、股东及其他投资者、员工、客户、供应商及其他合作伙伴、媒体、非政府组织及行业协会、以及公众与社区。公司通过问卷调查、投资者问询、行业交流会议等方式收集来自内外利益相关方对重要性议题的反馈和评估建议，以界定实质性议题。

**实质性：**世纪互联依据“SHIELD”可持续发展体系建立了 ESG 议题库，并基于公司业务模式和“SHIELD”可持续发展体系，结合行业特性、国家相关政策、资本市场关注点、利益相关方沟通结果、以及对标国内外 ESG 最佳实践，进行重要性议题识别和分析。公司从“对企业价值的影响（指对公司业务发展与运营的整体影响）”和“对社会及环境的影响”两个维度去评估和排序 2023 年度实质性议题，且董事会对这些重要性议题评估结果进行了审阅和批准。正如议题矩阵图所示，本期报告披露的高实质性议题包括但不限于信息安全与数据隐私、员工权益保护、可再生能源、以及碳排放管理。

**回应性：**世纪互联及时和恰当回应其主要利益相关方的方式是多元化的，包括信息披露、投资者交流互动、客户调研与问询、员工培训、供应商培训、举报与投诉渠道、以及社区公益活动等。公司官网已发布隐私声明。

本期报告披露了利益相关方关注的关键绩效指标数据，其涵盖能源消耗、温室气体排放、废弃物、商业道德、雇佣、健康与安全、以及信息安全与隐私保护等。

**影响性：**世纪互联考虑了 ESG 对公司运营的影响，并建立了“SHIELD”可持续发展体系，以及落实风险管理流程。其中风险管理涵盖了信息安全风险、人力资源风险、以及气候变化风险。公司已设定 ESG 指标与目标，比如，合规、节能降耗、健康与安全等，并将多项 ESG 指标纳入公司管理层的可持续发展绩效考核与



- Collecting documentary evidence and assessing management representations to support adherence to the AccountAbility Principles.

## Limitations

TÜV Rheinland performed the assurance based on the scope of defined engagement agreement, and on a moderate level assurance under the AA1000AS for engagement. Information and performance data subject to assurance is limited to the contents of the Report.

Procedures performed in a moderate assurance vary in nature from, and are less in extent, than high level assurance.

Our assurance work did not cover financial report and its financial data, nor did it include other sustainability subject matters that fall outside the scope of this assurance.

## Conclusions

Based on our methodology and activities performed within the scope of this assurance, we can reach a conclusion that no instances or information came to our attention that would be to the contrary of the statement made as below:

- VNET 2023 ESG report and its contents adhere to the AA1000 AccountAbility Principles.
- VNET has implemented management processes to collect and aggregate key performance data related to material issues within the reporting boundary, while the company identifies, evaluates, defines and manages material issues.
- The ESG-related information and performance indicators disclosed in this report have been evaluated and supported by documentary evidence to truly reflect VNET's ESG management practices.

TÜV Rheinland shall not bear any liability or responsibility to a third party for perception and decision on VNET based on this Assurance Statement.

## Adherence to the AA1000 AccountAbility Principles

### Inclusivity

VNET's identified key stakeholders include governments and regulators, shareholders and other investors, employees, customers, suppliers and other partners, media, NGOs and industry associations, as well as the public and the community. The company collects feedback and evaluation suggestions on ESG-related issues from internal and external stakeholders through questionnaire surveys, investor inquiries, industry exchange meetings, etc. to determine material issues.

### Materiality

VNET has established an ESG issue database according to the “SHIELD” sustainability system. And, based on the company's business model and “SHIELD” sustainability system, VNET has identified and analyzed material issues by considering industry characteristics, relevant national policies, capital market concerns, stakeholder communication results, and benchmarking domestic and foreign ESG best practices. The Company evaluates and prioritizes the material issues of the year 2023 from the two dimensions of “impact on enterprise value (meaning the overall impact on the company's business development and operations)” and “impact on environment and society”, and the Board of Directors reviews and approves the results of the assessment of these material issues. As shown in the issue matrix, the high-materiality issues disclosed in this report include, but are not limited to, information security and data privacy, protection of employees' rights and interests, renewable energy, and carbon emission management.

### Responsiveness

VNET responds to its key stakeholders in a timely and appropriate manner in a variety of ways, including information disclosure, investor interaction, customer research and inquiry, employee training, supplier training, reporting and complaint channels, and community public welfare activities. The company's official website publishes a privacy statement.

This ESG report discloses data on key performance indicators that stakeholders are concerned about, including energy consumption, greenhouse gas emissions, waste, business ethics, employment, health and safety, and information security and privacy protection.





评估，以推进 ESG 管理。

### 特定绩效信息的观察和建议

基于类型-2 审验要求，我们针对特定绩效信息（包括能源消耗总量（兆瓦时）、可再生能源消耗总量（兆瓦时）、非可再生能源消耗总量（兆瓦时）、水资源消耗量（立方米）、温室气体排放总量（吨二氧化碳当量）、温室气体排放强度（吨二氧化碳当量/ 千元美元收入）、废弃物（千克）、员工缺勤率（%）、男女员工薪酬比率）的可靠性与质量的观察和建议如下：

- 世纪互联已实施适当的流程以收集和汇总公司选择的特定绩效信息和指标数据，并在审验范围内于报告中披露。
- 经相关流程评估，特定绩效指标数据验证从整体上来说是正确的，且获得证据支持。我们建议世纪互联应围绕 ESG 关键绩效指标的自动化数据收集与计算而作出努力。

#### 潘敏

企业可持续发展服务技术经理  
莱茵技术（上海）有限公司  
中国上海，2024 年 4 月 8 日



### Impact

VNET considers the impact of ESG on the company's operations and establishes a "SHIELD" sustainability system to implement a risk management process. Among them, risk management covers information security risks, human resources risks, and climate change risks. The company has set ESG indicators and goals, such as compliance, energy conservation and consumption reduction, health and safety, etc., and has incorporated a number of ESG indicators into the management's sustainability performance appraisal and evaluation to promote ESG management.

### Observations and Recommendations for Specified Performance Information

Based on the Type 2 assurance engagement, our observations and recommendations on the reliability and quality of specified performance information (including Total energy consumption (MWh), Total renewable energy consumption (MWh), Total non-renewable energy consumption (MWh), Water consumption (cubic meters), Total GHG emissions (tonnes CO<sub>2e</sub>), GHG intensity (tonnes CO<sub>2e</sub> / \$1,000 revenue), Waste (kg), Absentee rate (%), Gender pay gap) are as follows:

- VNET has implemented appropriate processes to collect and aggregate specified performance information and data the company selects and discloses in this report within the assurance scope.
- Upon assessing related processes, specified performance indicator data are verified to be accurate overall and supported by evidence. We recommend that VNET should make efforts to automate data collection and calculations across its ESG-related key performance indicators.

#### Daniel Pan

Corporate Sustainability Service Technical Manager  
TÜV Rheinland (Shanghai) Co., Ltd  
Shanghai, China, 8 April 2024





**WE SUPPORT**



Since 2021, VNET Group, Inc. has been committed to the UN Global Compact corporate responsibility initiative and its principles in the areas of human rights, labor, environment and anti-corruption.



#### 免责声明

本报告中的信息可能包含预测性陈述，包括但不限于未来商业模式、相关行业的发展趋势和新技术。这些陈述可能包括有关本集团或其管理人员对本集团的综合经营绩效表现和财务状况的意图、信念或当前预期的描述。这些预测性陈述不是对未来绩效表现的保证，涉及风险和不确定性，基于各种因素和假设，实际结果可能与预测性陈述中的结果不同。除法律要求外，本集团或其任何关联公司、顾问、代表或承销商均无义务也不承诺修改预测性陈述以反映未来事件或情况。

#### General Disclaimer

The information in this report may contain predictive statements, including but not limited to, future business model, the development trend of relevant industries and new technologies. These statements may include descriptions regarding the intent, belief or current expectations of the Group or its officers with respect to the consolidated results of operations and financial condition of the Group. Such predictive statements are not guarantees of future performance and involve risks and uncertainties, and actual results may differ from those in the predictive statements as a result of various factors and assumptions. The Group or any of its affiliates, advisors, representatives or underwriters has no obligation and does not undertake to revise predictive statements to reflect future events or circumstances, except as required under law.