



MINGYANG SMART ENERGY
明阳智能
地蕴天成·能动无限

2018

明阳智慧能源集团股份有限公司
社会责任报告



关于本报告

About This Report

报告简介

Introduction

《明阳智慧能源集团股份公司 2018 年度社会责任报告》是明阳智能首次发布的社会责任报告。报告本着客观、规范、透明和全面的原则，详细披露了明阳智能 2018 年在公司治理、环境、社会等社会责任领域的实践和绩效。

2018 Social Responsibility Report of Mingyang Smart Energy Group Limited is the first social responsibility report issued by Mingyang Smart Energy. Based on the principles of objectivity, standardization, transparency and comprehensiveness, this report discloses in detail Mingyang Smart Energy's practice and performance in corporate governance, environment, society and other social responsibilities in 2018.

时间范围

Period

2018 年 1 月 1 日至 2018 年 12 月 31 日。为增强报告可比性和完整性，以及考虑到此报告为公司首次发布的社会责任报告，部分内容适当溯及以往年份与未来年份。

The reporting period is from January 1, 2018 to December 31, 2018. To enhance the comparability and completeness of the report, and considering that this report is the first social responsibility report issued by the Company, some contents are appropriately traced back to previous years and future years.

发布周期

Release Cycle

本报告是年度报告。

This report is an annual report.

报告范围

Scope

本报告组织范围为明阳智慧能源集团股份公司及其子公司的业务。

The scope of this report covers the business of Mingyang Smart Energy and its subsidiaries.

编制依据

Preparation Basis

联合国全球契约十项原则；
国际标准化组织《ISO26000：社会责任指南（2010）》；
全球报告倡议组织《可持续发展报告编写指南》（GRIG4）；
中国社会科学院《中国企业社会责任报告编写指南》（CASS-CSR3.0）。

The Ten Principle of the UN Global Compact;
International Standard Organization ISO 26000: Guidance on Social Responsibility (2010);
Global Reporting Initiative Sustainability Reporting Guidelines (GRIG4);
Chinese Academy of Social Sciences China CSR Reporting Guidelines (CASS-CSR3.0).

数据来源与可靠性保障

Data Source and Reliability Guarantee

报告使用数据来源包括政府部门公开数据、明阳智能内部相关统计报表、第三方问卷调查、行政文件及报告和第三方评价访谈等。明阳智能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。

The data sources used in the report include the public data of government departments, relevant internal statistical reports of Mingyang Smart Energy, third-party questionnaires, administrative documents and reports, and third-party evaluation and interviews. Mingyang Smart Energy guarantees that there are no false records, misleading statements or major omissions in this report.

称谓说明

Appellation

为了便于表述和阅读，本报告中“明阳智慧能源集团股份有限公司”也以“明阳智能”“公司”或“我们”表示。

For the convenience of expression and reading, Mingyang Smart Energy Group Limited herein is also referred to as “Mingyang Smart Energy”, “the Company” or “we”.

报告获取

Access to Report

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You can view or download this report on the official website of Mingyang Smart Energy (<http://www.mywind.com.cn/>). If you have any questions or suggestions about the report, send an email to myse@mywind.com.cn or call 0760-28138642.



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董事长致辞

2018年，是我们“重构明阳”极为关键和极不平凡的一年。我们直面重大机遇和挑战，逆势而上，聚焦打赢引领市场、产业转型、大风机、海上风电、产融协同、人力资源结构优化、海外突破这七场生死之战，重塑了公司的行业领军形象，向第二步发展战略目标迈出了坚实的步伐。

我们开启了广东省海上风电从不可能到可能的伟大壮举，也成为了中国海上风电的风向标和全球的聚焦点，我们是获得全球海上风电订单最多的企业，占据了全国海上风电一半的份额；大风机之战。我们从全球风机的跟随者、并行者实现向引领者的跨越，为中国风电迈入“低电价、无补贴”时代奠定了基础，也让整个中国新能源行业从不确定电价机制到确定电价机制，使整个行业迈入健康、可持续发展时代。我们凭借自主创新实现全球风轮直径最大的抗台风机成功吊装投运，并在全球首个国际化大功率海上试验风电场成为发电领跑的标杆，再次抢占全球海上风电技术制高点，继续引领世界海上风电新发展、新辉煌。

我们布局和全面构建了集风、光、储、发、配、售为一体的新能源服务能力，形成了能源服务资产规模，与高端制造相辅相成，构建支撑产业高质量发展的多元化业务模式。我们平行推进产业升级和转型、加速推进技术突破。明阳智能新的增长极正在形成，产业协同发展优势蓄势待发。

2018年，我们以新能源开发，助力粤港澳大湾区建设；积极完善全生命周期管理，实现价值增值；构建规范透明的经营治理体系，筑牢风险底线意识；持续加大产品技术和商业模式创新力度；打造一支辛勤工作、担当作为的员工队伍；营造敢担当、敢作为，敢打仗、打胜仗的精神文化。



我们深知企业的终极价值在于实现企业的社会价值。我们将抓住高端制造和新能源服务的发展根本，更加主动地融入和服务国家和民族发展之中，在更广阔的领域承担并履行企业的社会责任，将明阳智能打造成一家有执行力、创新力、影响力的全球顶级风机制造商和清洁能源整体解决方案提供商，以优异成绩回报社会和广大投资者，以坚决的行动，让新能源开发更加高效，让社会更加公平，让风更清、天更蓝、水更绿！

董事长签字：

Address from President

2018 is a crucial and extraordinary year for “reconstructing Mingyang”. We have faced up to major opportunities and challenges, went against the trend and focused on the seven fields of market leading, industrial transformation, large wind turbines, offshore wind power, industry-finance coordination, human resources structure optimization, and overseas breakthrough. We have reshaped our image as an industry leader and taken solid steps towards the strategic objectives of second-step development.

We have made a great feat by making offshore wind power possible in Guangdong, and have become a model in China’s offshore wind power industry and a global focus. We have the largest number of offshore wind power orders in the world, accounting for half of the country’s offshore wind power orders. In terms of large wind turbines, we have changed from followers to leaders, laying a foundation for China’s wind power industry to enter the era of “low electricity price and no subsidy”. We have also enabled China’s new energy industry to establish a fixed electricity price mechanism, thus leading the industry into the era of sound and sustainable development. Through independent innovation, we have successfully hoisted and put into operation the anti-typhoon wind turbine with the largest wind wheel diameter in the world, establishing a benchmark for power generation in the world’s first international high-power offshore test wind power farm. We have once again seized the commanding heights of global offshore wind power technology and will continue to lead the world in development of offshore wind power.

We have arranged and comprehensively built a new energy service capability integrating wind, light, storage, generation, distribution and sales, forming energy service assets which complement high-end manufacturing, thus building a diversified business model supporting the high-quality industrial development. We promote industrial upgrading and transformation and accelerate technological breakthrough simultaneously. A new growth pole of Mingyang Smart Energy is emerging, and the advantages of coordinated industrial development are gaining momentum.

In 2018, we have helped the construction of Guangdong-Hong Kong-Macao Greater Bay Area by new

energy development; actively improved full life cycle management to increase value; built a standardized, transparent operation and management system and strengthened the awareness of risk bottom line; continued to intensify the innovation of product technology and business models; built a diligent and responsible workforce; and fostered the spirit of daring to take responsibility, daring to act, daring to fight and winning battles.

We know that the ultimate value of an enterprise lies in realizing its social value. We will seize the root of the development of high-end manufacturing and new energy services, more actively integrate into and serve the development of the country and the nation, and undertake and fulfill corporate social responsibilities in a broader field. We will develop Mingyang Smart Energy into a world-class wind turbine manufacturer and clean energy overall solution provider with execution, creativity and influence, reward the society and investors with outstanding achievements, and take resolute actions to make new energy development more efficient, the society fairer and the environment better!

President’s Signature:



社会责任 · 一直在路上

Social Responsibility · Always on the Road

明阳智能——做全球清洁能源智慧化普惠制领导者

Mingyang Smart Energy: Leader of Global Clean Energy Intelligent GSP System



发展绿色能源，造福人类社会

Developing Green Energy for the Benefit of Human Society

在“十三五”规划提出全方位推进能源结构性改革，政府不断加大可再生能源发展的政策扶持力度的背景下，明阳智能坚定推动高端装备制造产业，不断积极推广风电技术和产品，推动生产更多绿色电力，减缓和应对气候变化。截至 2018 年末，累计向客户交付风机 14,725.9MW，每年可实现清洁能源约 3,000 亿 kWh。作为绿色能源的先行者，公司积累绿色行业经验，完成了 10 亿元绿色中期票据的注册，5 亿元绿色中期票据的发行，是广东省首单获得注册的绿色中期票据的企业。

Under the background of the comprehensive energy structural reform proposed in the “Thirteenth Five-Year Plan” and the government’s increasing policy support for the development of renewable energy resources, Mingyang Smart Energy firmly promotes the high-end equipment manufacturing industry, constantly actively generalizes wind power technology and products, and pushes production of more green electricity so as to mitigate and tackle climate change. By the end of 2018, a total of 14,725.9MW wind turbines have been delivered to customers, achieving about 300 billion kWh of clean energy every year. As a pioneer of green energy, the Company has accumulated experience in the green industry and completed RMB 1 billion of green medium-term notes registrations and RMB 500 million of their issuances. The Company is the first enterprise obtaining the registration of green medium-term notes in Guangdong Province.



落实国家战略，实现社会担当

Implementing national strategy and realizing social responsibility

明阳智能响应国家战略政策，积极落实粤港澳大湾区”战略和珠西岸先进装备产业布局规划，发挥坐落于广东沿海的区位优势，深度挖掘风机制造和研发潜力，大力推进广东海上风电各项业务，担当粤港澳大湾区能源清洁化和广东省能源结构转型的排头兵。

Mingyang Smart Energy responds to the national strategic policy, actively implemented the “Guangdong-Hong Kong-Macao Greater Bay Area” strategy and the layout planning of the advanced equipment industry in the west coast of Zhuhai, gives full play to its location advantage located along the coast of Guangdong, deeply explores the potential of wind turbine manufacturing and R&D, vigorously promotes various businesses of Guangdong offshore wind power, and takes the lead in the clean energy of Guangdong-Hong Kong-Macao Greater Bay Area and the transformation of Guangdong’s energy structures.



共建“一带一路”，不忘使命

Co-building the Belt and Road and never forgetting the mission

明阳智能发挥自身行业优势和专业经验，积极参加国际能源合作，在共建“一带一路”框架内加强能源领域合作，建立“一带一路”能源合作伙伴关系，共同促进全球能源可持续发展，维护全球能源安全。明阳智能主要通过销售整机设备和就地建厂的模式开展经济合作，如与印度当地能源企业合资建厂。在发展业务的过程中，加深了对一带一路国家的理解，加强了和当地组织的交流与合作。

Mingyang Smart Energy gives full play to its industry advantages and professional experience, actively participates in international energy cooperation, strengthens energy cooperation within the framework of co-building the Belt and Road, establishes the Belt and Road energy partnership so as to jointly promote the sustainable development of global energy and safeguard global energy. Mingyang Smart Energy mainly carries out economic cooperation by selling complete equipment and building factories on site, such as establishing joint ventures with local energy enterprises in India. In the process of developing business, the Company has deepened its understanding of the Belt and Road countries and strengthened exchanges and cooperation with local organizations.



技术创新，新能源普惠

Technological innovation and GSP for green energy

公司持续通过技术创新，推动可再生能源度电成本的不断下降，助力我国可再生能源迈入“平价上网时代”，通过清洁能源生产和消费模式的创新，推进分布式和分散式风电和太阳能的建设，把清洁能源普惠到城镇、农村、社区和家庭，实现绿色能源的普惠制。

Through technological innovation, the Company has continuously pushed down the electricity consumption cost of renewable energy, helping China's renewable energy to enter the "affordable Internet era". Through innovation in clean energy production and consumption modes, the Company has pushed forward the construction of distributed and decentralized wind power and solar energy, bringing clean energy to towns, villages, communities and families, and realizing the GSP for green energy.



创新发展，促进重大装备技术进步

Innovative development promotes the technological progress of major equipment

在明阳智能进军风电行业时，我国还是风电技术与装备“受援国”，基本上依赖欧美国家技术许可，处于引进落后产能，以市场换技术的产业发展模式。为了彻底改变受制于人的被动局面，明阳智能秉持自主创新理念，依靠自身强大的核心技术储备，关键零部件的自主研发制造能力，不断实现技术创新和商业模式创新。公司经过长期持续的研发投入，掌握了大风机先进装备技术，为中国从风电受援国向风电新能源装备制造大国和装机大国的转变做出贡献，已经成为国内领先的风机新能源装备制造厂商，引领新能源技术创新模式，推动国内重大装备产业发展。

When Mingyang Smart Energy entered the wind power industry, China was still a "recipient country" of wind power technology and equipment, basically relying on the technology license of European and American countries, and was in the industrial development mode of introducing backward production capacity and trading market for technology. In order to completely change the passive situation under the control of others, Mingyang Smart Energy upholds the concept of independent innovation, relies on its own strong core technology reserves and independent R&D and manufacturing capabilities of key components, and continuously realizes technological innovation and business model innovation. Through long-term and sustained research and development investment, the Company has mastered advanced equipment technology for large wind turbines, contributing to China's transformation from a recipient country of wind powers to a large country of wind power and new energy equipment manufacturing and installation. It has become a leading manufacturer of new energy equipment for wind turbines in China, leading the innovation mode of new energy technology and promoting the development of major equipment industries in China.



产业扶贫，共享和谐发展

Industrial Poverty Alleviation to Share Harmonious Development

为高质量打赢脱贫攻坚战，明阳智能发挥新能源制造商的行业优势与经验知识，不断开展特色扶贫，以产业扶贫、就业扶贫和扶智扶智三位一体的扶贫路径，实现新能源扶贫，共享和谐发展。公司在全国布局 12 个产品制造和服务基地以及产业集群，提供了上万人的就业机会，带动产业集群化，为当地的经济可持续发展作出巨大的贡献。

In order to win the battle against poverty with high quality, Mingyang Intelligence has brought into full play the industry advantages and experience knowledge of new energy manufacturers, and continuously carried out poverty alleviation with its own characteristics. It aims to achieve poverty alleviation with new energy and achieve harmonious development through the three-in-one poverty alleviation path of industrial poverty alleviation, employment poverty alleviation and poverty alleviation. The company has 12 product manufacturing and service bases throughout the country, providing employment opportunities for more than 4,000 people, driving industrial clustering, and making tremendous contributions to the sustainable development of the local economy.



新能源扶贫，助力乡村振兴

New Energy for Poverty Alleviation and Rural Revitalization

为了解国内偏远地区人民生活条件，以及能源资源开发利用情况，近几年，张传卫董事长调研的足迹已经遍布全国的东南西北，从青藏高原到云贵高原，从内蒙古的草原到东南沿海，新疆、西藏、青海、内蒙古、宁夏、吉林、云南、广东等省区，深刻理解新能源扶贫的重要性和必要性。明阳积极开拓新能源扶贫新方法新路径，多项光伏村级扶贫项目作为十大精准扶贫工程之一，如公司为山西省朔州市右玉县建档立卡贫困村无偿建设三座村级光伏扶贫电站，总容量为 2,759KWp，总造价约为人民币 2,000 万元，为当地村庄扶贫事业提供持续作用。

In order to understand the living conditions of people in remote areas in China and the development and utilization of energy resources, in recent years, Chairman Zhang Chuanwei has made investigations in the southeast and northwest of the country, from the Qinghai-Tibet Plateau to the Yunnan-Guizhou Plateau, from the grasslands of Inner Mongolia to the southeast coast, and Xinjiang, Tibet, Qinghai, Inner Mongolia, Ningxia, Jilin, Yunnan, Guangdong and other provinces and regions, so as to deeply understand the importance and necessity of new energy to eradicate the poverty. Mingyang is actively exploring new approaches to poverty alleviation through new sources of energy. As one of the top ten targeted poverty alleviation projects, a number of photovoltaic village-level poverty alleviation projects, such as the company's construction of three village-level photovoltaic poverty alleviation power stations free of charge for registered and archived village in Youyu County, Shuozhou City, Shanxi Province, have a total capacity of 2,759KWp with a total cost of about 20 million yuan, playing a continuous role for the poverty alleviation cause in local villages.

2018 年可持续发展关键指标

Key Indicators of Sustainable Development in 2018



经济 Economics

资产总额

Total assets

2,233,183.51 万元

22,331.83 million yuan

↑ 同比增长
Year-on-Year Basis

16.78%

营业收入

Operating income

690,214.72 万元

6,902.14 million yuan

↑ 同比增长
Year-on-Year Basis

30.27%

归母净利润

Net profit attributable to the parent company

42,596.65 万元

425.97 million yuan

↑ 同比增长
Year-on-Year Basis

19.64%

基本每股收益

Basic earnings per share

0.39 元 / 股

0.39 Yuan/share

↑ 同比增长
Year-on-Year Basis

21.88%

新增装机容量

New installed capacity of China wind power market

262.36 万千瓦

2.62 billion Gigawatt

↑ 同比增长
Year-on-Year Basis

6.65%

全球 / 中国风电整机制造商市场排名

Ranking in the global/Chinese market for wind turbine manufacturers

全球第 **7**，中国第 **3**

Ranking 7th in the world
Ranking 3rd in China



研发 R&D

研发技术人员数量
Number of R&D personnel

837 人
837 people

研发技术人员比例
Proportion of R&D personnel

15.29%

研发投入
R&D input

25,175.92 万元
251.75 million yuan

研发投入占营业收入比例
Proportion of R&D input in operating income

3.65%



员工 Staff

员工总数
Total staff

5,475 人
5,475 people

劳动合同签订率
Labor contract signing rate

100%

社会保险覆盖率
Social insurance coverage

100%

举办培训场次
The number of holding training programmes

1,184 场
1,184 times

授课人次
Teaching person-time

3.2 万人次
32 thousand people



环境 Environment

电力消耗量
Electric power consumption

7,370,816 千瓦时
7,370,816 kWh

年人均耗水量
Water consumption per capita

85.33 吨 / 人
85.33 Ton/person

水资源使用量
Volume of water resources used

501,938.8 吨
501,938.8Ton

社会责任大事记

Events of Social Responsibility

- ▶ Zhang Chuanwei, President and CEO of the Company, was elected to the 13th National People's Congress and attended the first meeting of the 13th National People's Congress to offer suggestions.
- ▶ 公司董事长兼首席执行官张传卫当选十三届全国人大代表，并出席十三届全国人大一次会议，建言献策。

2018 年 2 月 February 2018

- ▶ The provincial government held an on-the-spot meeting on the promotion of offshore wind power construction in Mingyang Smart Energy Zhongshan Headquarters. Before the meeting, the provincial government leaders inspected the wind turbine development, test and production workshops and big data center of Mingyang Smart Energy.
- ▶ 省政府在明阳智能中山总部召开全省推进海上风电建设工作现场会，会前省政府领导一行考察了明阳智能风机研制、试验生产车间及大数据中心。

2018 年 4 月 April 2018

2018 年 3 月 March 2018

- ▶ 公司组织近两百名同事观看爱国主义影片《厉害了，我的国》，弘扬了社会正能量，激发了广大员工的爱国情怀。
- ▶ 公司五十多名员工组成的方阵参加中山市第 31 届慈善万人行巡游活动体现了，明阳智能人的能动、博爱精神。
- ▶ The Company organized nearly two hundred employees to watch the patriotic film Amazing China, promoting the positive energy of the society and inspiring the patriotic feelings of staff.
- ▶ More than 50 employees of the Company participated in the 31st Zhongshan Charity Parade, demonstrating the dynamic and philanthropic spirit of Mingyang Smart Energy.

2018 年 5 月 May 2018

- ▶ 公司完成了 10 亿元绿色中期票据的注册，5 亿元绿色中期票据的发行，是广东省首单获得注册的绿色中期票据的企业。
- ▶ 公司被认定为“国家级 2017 高新技术企业”。
- ▶ The Company completed the registration of RMB 1 billion of green medium term notes (MTNs) and the issuance of RMB 500 million of MTNs. It is the first enterprise to register green MTNs in Guangdong.
- ▶ The Company was recognized as a “National High-tech Enterprise 2017”.

- > The Company completed China's first low-voltage ride-through test for offshore wind turbines, which was the first time for China to conduct a low-voltage ride-through test for wind turbines at sea.
- > The Company held the 11th Sports Meeting and the First Fun Sports Meeting to keep employees together.
- > The Company set up Mingyang Smart Energy Charity Fund. By the end of December 2018, the Company has received donations of about RMB 3 million and helped nearly 100 employees.
- > The Company set up a training camp for new recruits in 2018; nearly 120 new recruits attended the camp.
- > 公司完成全国首个海上风电机组低电压穿越测试，开创了我国在海上进行风电机组低电压穿越测试的先河。
- > 公司开展第十一届运动会暨首届趣味运动会，激发员工凝聚力。
- > 公司设立明阳智能集团爱心基金，截止 2018 年 12 月底，共收到捐款约三百万余元，累计帮扶慰问员工近百人次。
- > 公司能动新生代 2018 新入职大学生训练营开班，近 120 多位新入职大学生参加。

2018 年 7 月 July 2018

2018 年 12 月 December 2018

2018 年 9 月 September 2018

2019 年 1 月 January 2019


- > 公司携拳头产品及解决方案亮相全球最大风能盛会——德国汉堡国际风能展，与参会欧洲政府代表、国际风电行业展开对话。
- > The Company participated in the world's largest wind energy event – Wind Energy Hamburg, with its competitive products and solutions, and had talks with European government representatives and the international wind energy industry.

- > 公司在上交所上市，智慧能源谱写美丽中国明阳智能梦。
- > The Company was listed on the Shanghai Stock Exchange, building a beautiful China with smart energy.

关于 明阳智能

Mingyang Smart Energy at a Glance

明
阳
风
电



公司简介

Company Profile

明阳智能成立于 2006 年，自创立以来，始终坚守实业报国和高端装备制造不动摇，坚持创新引领、自主研发不动摇，闯出了一条被国际同行广泛认可的中国风电自主发展“明阳模式”，全力打造中国新能源“大国重器”的领军企业。2019 年 1 月 23 日在上海证券交易所挂牌上市，股票代码为 601615。

公司以实现能源的绿色、普惠和智慧化为使命，以打造清洁能源全生命周期价值链管理与系统解决方案的供应商为愿景，通过技术创新和商业模式创新，目前已逐步发展成为国内领先、全球具有重要影响力的智慧能源企业集团，位居全球新能源企业 500 强第 37 位，全球海上风电创新排名第一位。

明阳智能秉承“全球合作、全球共享”的理念，倡议用新能源点亮一带一路，推进公司朝着“全球清洁能源智慧化、普惠制领军者”目标迈进，在伟大的时代创办全球伟大的公司，用绿色清洁能源服务新时代，建设新时代。

Since its establishment in 2006, Mingyang Smart Energy has adhered to the principle of serving the country with industry and manufacturing high-end equipment, innovation and independent R&D. The Company has created a “Mingyang Model” for independent wind power development in China, which is widely recognized by international peers, and has made every effort to build a leading enterprise as the pillar of China’s new energy industry. On January 23, 2019, it was listed on the Shanghai Stock Exchange with the stock code of 601615.

The Company’s mission is to realize green, universal and smart energy, and its vision is to build suppliers of full life circle value chain management and system solutions for clean energy. Through technological innovation and business model innovation, the Company has gradually developed into a domestic leading smart energy enterprise group with global influence, ranking 37th in the Global Top 500 New Energy Enterprises and first in Global Offshore Wind Innovation.

Mingyang Smart Energy, adhering to the concept of “global cooperation and global sharing”, advocates promoting new energy resources along the Belt and Road, guiding the Company towards the goal of becoming the “leader in smart development of global clean energy and GSP”, establishing a great global company in a great era, and serving and building the new era with green clean energy.



美丽中国 明阳梦



张传卫董事长简历 Chairman Zhang Chuanwei's resume

张传卫，男，汉族，1962年6月生，1979年参加工作，1980年7月加入中国共产党，中山大学工商管理专业毕业，在职研究生学历，工商管理硕士学位。担任第十二届、第十三届全国人大代表，广东省工商联副主席，广东省中山市人大常委会委员。

1993年创立中山市明阳电器有限公司，2006年创立广东明阳风电技术有限公司（系“广东明阳风电产业集团有限公司”、“明阳智慧能源集团股份有限公司”前身）。张传卫现任明阳智慧能源集团股份有限公司董事长兼首席执行官，先后获得中国改革开放30年十大创新人物、全国优秀中国特色社会主义事业建设者、2010年度中国十大新能源人物、2010 CCTV中国经济年度人物、2018年全国五一劳动奖章等荣誉称号。

Zhang Chuanwei, male, Han nationality, born in June 1962, started work in 1979 and joined the Communist Party of China in July 1980. He graduated from Sun Yat-sen University majoring in business administration. He obtained an on-the-job postgraduate diploma and a master's degree in business administration. He served as deputy to the 12th and 13th National People's Congress, Vice-Chairman of the Guangdong Federation of Industry and Commerce, and member of the Standing Committee of Guangdong Zhongshan Municipal People's Congress.

Zhang founded Zhongshan Mingyang Electric Appliance Co., Ltd. in 1993 and Guangdong Mingyang Wind Power Technology Co., Ltd. in 2006 (later known as Guangdong Mingyang Wind Power Industry Group Co., Ltd. and Mingyang Smart Energy Group Ltd.) Zhang Chuanwei is currently President and CEO of Mingyang Smart Energy Group Ltd. He has successively won the honorary titles of [China's Top 10 Innovators in 30 Years of Reform and Opening-up](#), [National Outstanding Builder of Socialism with Chinese Characteristics](#), [2010 China's Top 10 New Energy Figures](#), [2010 CCTV Economic Person of the Year](#), [2018 National Labor Medal](#), etc.

发展历程

Development History

2007

5月

May

获得第一单销售订单

Obtained the first sales order.

2008

5月

May

交付第一批风机

Delivered the first batch of wind turbines.

2009

2月

February

总累计订单录得 1,500MW

The total accumulative orders were recorded at 1,500MW.

2010

5月

May

完成第一个 SCD2.5/3.0MW 产品原型

Completed the first SCD 2.5/3.0mw prototype.

10月

October

在纽交所上市

Listed on the New York Stock Exchange.

2011

7月

July

签订第一份 EPC 合约及开启中国首项海上风力 EPC 项目

Signed the first EPC contract and launched China's first offshore wind power EPC project.

12月

December

产值规模突破 100 亿元大关

The output value exceeded RMB 10 billion.

2012

6月

June

云南明阳风电技术有限公司成立

Yunnan Mingyang Wind Power Technology Co., Ltd. was established.

2013

2月

December

董事长张传卫当选第十二届全国人大代表

President Zhang Chuanwei was elected to the 12th National People's Congress.

11月

November

与罗马尼亚潘尼斯库集团在国务院总理李克强和罗马尼亚总理蓬塔见证下，签订风电项目开发协议及项目 EPC 与设备供货协议

Under the witness of Premier Li Keqiang of the State Council and Prime Minister of Romania Victor Ponta, the Company and Paunescu Group, Romania signed an agreement on wind power project development, EPC and equipment supply.

2014

8月

August

锡林郭勒盟明阳新能源有限公司在内蒙古成立

Xilingol Mingyang New Energy Co. Ltd. was established in Inner Mongolia.

10月

October

获得“2014 全球新能源企业 500 强国际合作奖

Won the “International Cooperation Award of 2014 Global Top 500 New Energy Enterprises”.

11月

November

风电 SCD 6.5MW 超紧凑海上风机在江苏如东国家实验风场成功吊装

The wind power SCD 6.5MW ultra-compact offshore wind turbine was successfully hoisted at the national test wind power farm in Rudong, Jiangsu.

2015

1月 January

中标巴基斯坦大沃 (Dawood) 风电项目
Won the bid for Dawood Wind Power Project in Pakistan.

11月 November

内蒙古明阳新能源开发有限公司获得内蒙古国蒙电力销售有限公司营业执照，标志着公司首家售电公司正式注册成立
Inner Mongolia Mingyang New Energy Development Co., Ltd. obtained the business license of Inner Mongolia Guomeng Power Sales Co., Ltd., marking the formal registration and establishment of the Company's first power sales company.

2016

6月 June

中山首所企业大学——明阳大学成立及揭牌仪式在明阳集团举行
The opening ceremony of Mingyang University, Zhongshan's first enterprise university, was held in Mingyang Group.

2017

3月 March

MySE 系列风机荣获“低风速时代十大技术创新奖”
MySE series fans won the “Top Ten Technological Innovation Award in Low Wind Speed Era”.

4月 April

正式更名为明阳智慧能源集团股份公司
Officially changed its name to Mingyang Smart Energy Group Limited.

7月 July

参加“推广绿证自愿认购暨首届中国绿色电力高峰论坛”，并成为全国首批申请购买绿证数量最大的单位。
Attended the “Promotion of Voluntary Subscription of Green Certificates and the First China Green Power Summit Forum” and became the first unit in the country to apply for the largest number of green certificates.

2018

2月 February

张传卫董事长当选第十三届全国人大代表
President Zhang Chuanwei was elected to the 13th National People's Congress.

4月 April

MySE5.5/7.0MW 机型顺利完成吊装
The hoisting of MySE5.5/7.0MW was completed successfully.

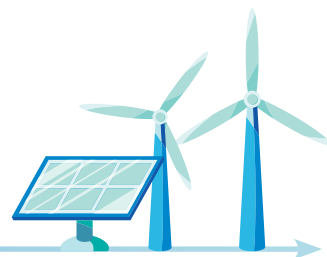
9月 September

风王“山竹”登陆广东核心区，明阳大兆瓦风机安然无恙
Typhoon “Shanzhu” landed in Guangdong's core areas and Mingyang megawatt wind turbines were safe and sound.

2019

1月 January

在上海证券交易所 A 股挂牌上市，股票代码：601615
Listed on the Shanghai Stock Exchange (A-share) with the stock code of 601615.



产业布局

Industrial Layout

明阳智能主营业务包括新能源高端装备制造，新能源电站投资运营及智能管理业务，主要涵盖：

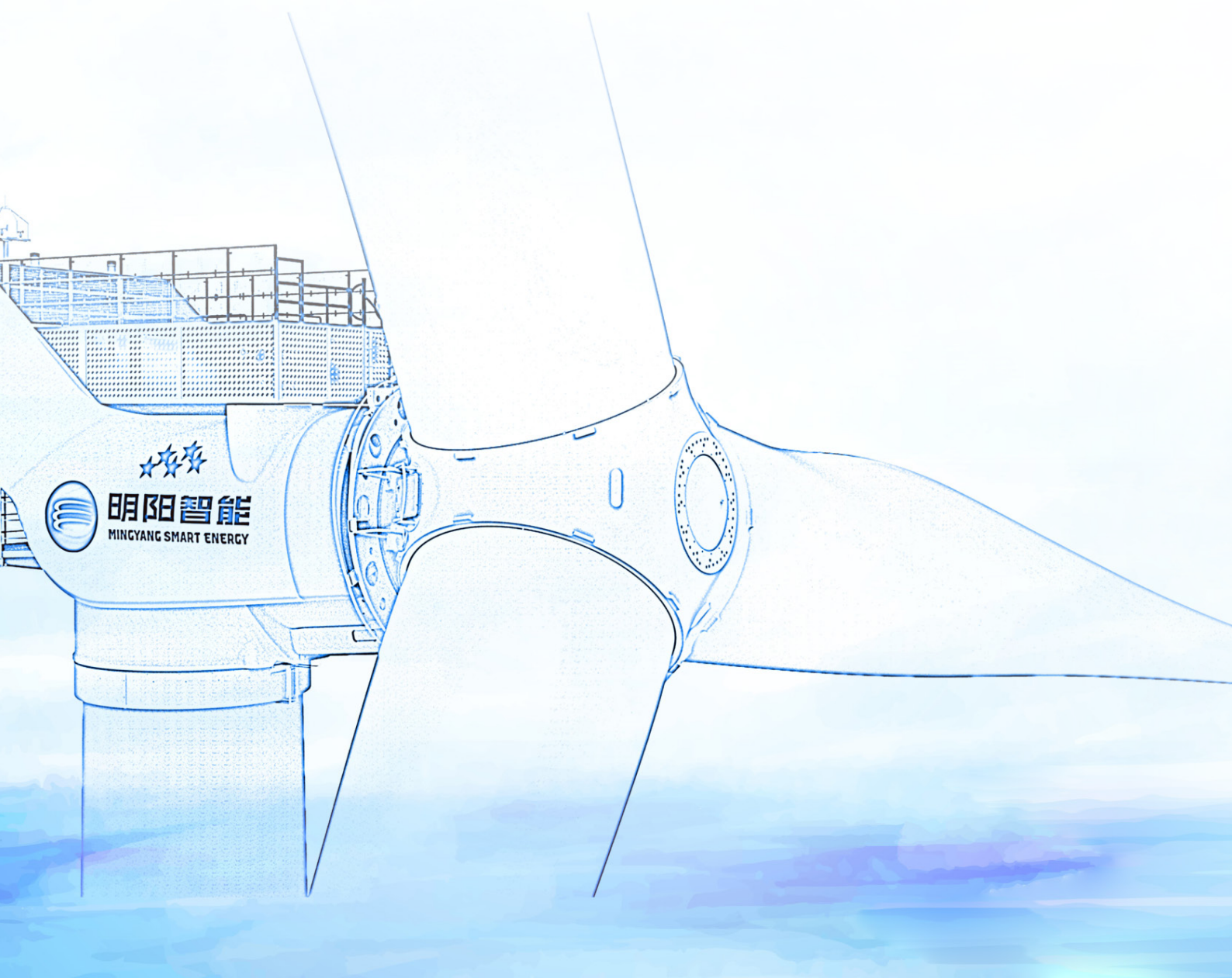
Mingyang Smart Energy's main business includes manufacturing of high-end new energy equipment, investment and operation of new energy power stations and intelligent management, mainly covering:

➤ 大型风力发电机组及其核心部件的研发、生产、销售、智能化运维

R&D, production, sales, intelligent operation and maintenance of large-scale wind turbines and their core components

➤ 风电场及光伏电站开发、投资、建设和智能运营管理

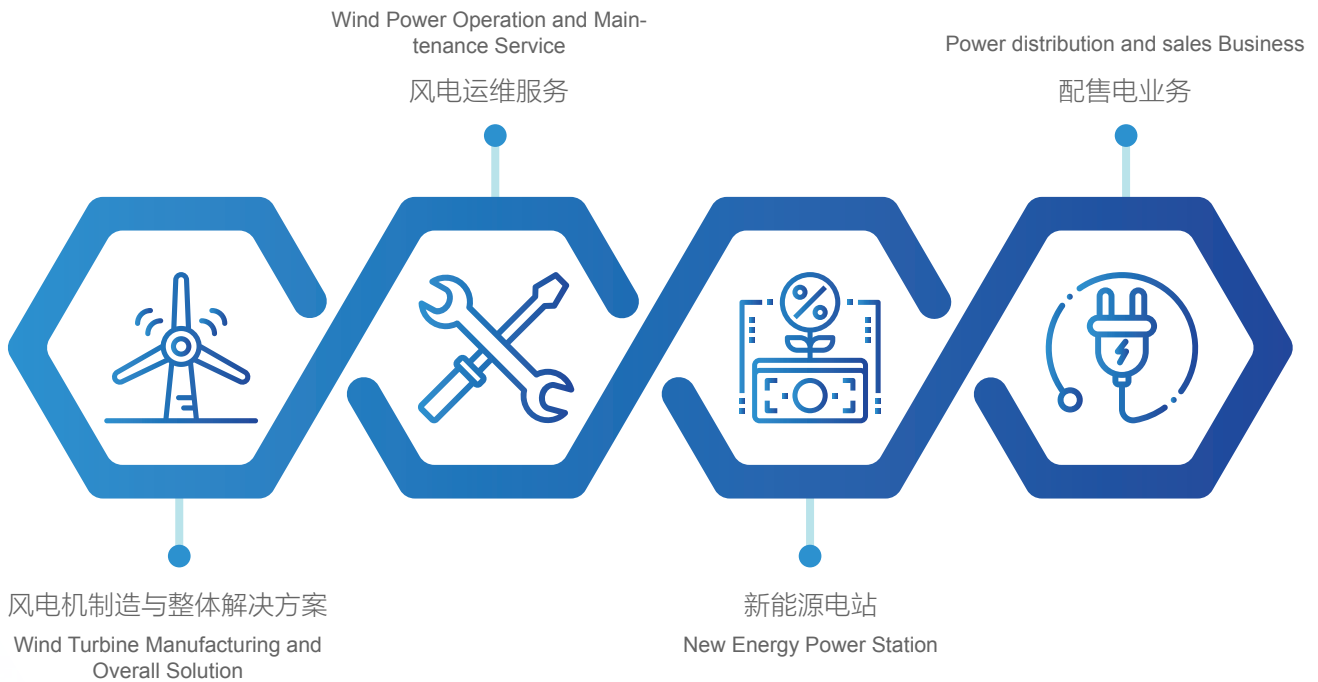
Development, investment, construction and intelligent operation and management of wind farms and photovoltaic power stations





明阳智能业务板块

Business Segments of Mingyang Smart Energy



公司目前已建立了华能、大唐、华电、华润和国电投等国有大型发电集团以及民营电力公司为主导的稳固的市场客户群。

2018年，公司凭借着大风机和抗台风技术优势在国内的海上风电竞标中处于绝对优势地位，远远超过行业其他竞争对手。同时，陆上风电竞标优势也同样不容小觑。在核心战略客户华能、华润、华电、国电投、大唐、中国电建、中国能建等大客户的中标市场份额都超过了25%。

公司总部位于中国广东中山，布局中山、北京、上海、深圳、硅谷、汉堡全球六大研发中心及销售、服务体系，已发展成为国内领先、全球具有重要影响力的智慧能源企业集团。

At present, the Company has established a stable customer base led by large state-owned power generation groups such as Huaneng, Datang, Huadian, China Resources and State Power Investment, as well as private power companies.

The Company is in an absolutely dominant position in the domestic offshore wind power bidding by virtue of its advantages in large wind turbines and anti-typhoon technology, and it's also competitive in onshore wind power bidding. In the core strategic customers Huaneng, Huarun, Huadian, Guodian, Datang, China Electricity Construction, China Energy Construction and other large customers, the winning market share has exceeded 25%.

Headquartered in Zhongshan, Guangdong, China, the Company has set up six global R&D centers in Zhongshan, Beijing, Shanghai, Shenzhen, Silicon Valley and Hamburg, and built sales and service systems. It has become a domestic leading smart energy enterprise group with great global influence.



全球布局 Global Layout



业务涉及 **4** 大洲，**8** 个国家

拥有全球 **6** 大研发中心，**11** 个产品制造和服务基地

服务 **260** 余个风电场，投运 **8,000** 余台风机

With its business in 4 continents and 8 countries, the Company has 6 R&D centers and 11 product manufacturing and service bases, serving more than 260 wind power farms, with over 8,000 wind turbines in operation.



-  风场
Wind Farm
-  基地
Base
-  研发中心
R&D Center

企业文化

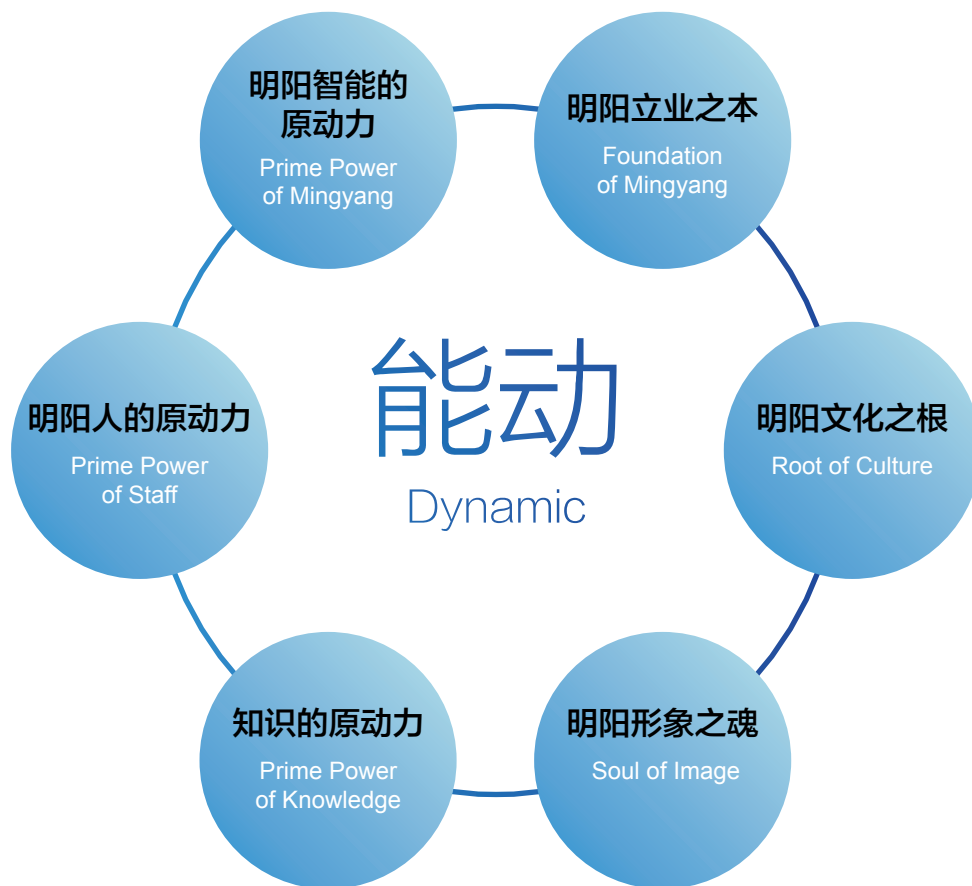
Enterprise Culture

核心价值

Core Value

“能动”作为原动力，源自明阳智能永续的经济生存中生命不息、蓬勃发展的强烈愿望，是对公司价值、个人价值实现的梦寐以求。能动理念、能动精神的凝聚、碰撞、融合，汇集成一种强大的厚积薄发的放射性的能量和活力，充满激情与创意，表现出高度的主观能动性和追求卓越的进取精神，逐渐积淀为一种能动不息的企业文化。

“Dynamic”, as the prime power, comes from Mingyang Smart Energy’s strong desire for sustainable and vigorous development and its dream of realizing corporate value and personal value. The dynamic concept and the dynamic spirit unite, collide and merge into a powerful, influential energy and vitality, full of passion and creativity, showing a high subjective initiative and the enterprising spirit of pursuing excellence. A dynamic enterprise culture is thus formed gradually.



公司愿景

Visions



打造全球领先的
智慧能源系统
整体解决方案提供商

To build a world-leading provider of integrated solutions for smart energy systems;

资源最具发展力、
产品最具竞争力、
品牌最具影响力的
中国新能源
装备产业领导者

To become the leader of China's new energy equipment industry with the most potential resources, the most competitive products and the most influential brand;

铸造负责任、重诚信、
有尊严、受尊敬的
国际知名品牌

To build a responsible, honest, dignified and respected international famous brand.

A man in a dark blue suit, white shirt, and red and white striped tie is shown from the chest up, holding a silver notebook and a white pen, appearing to be writing. The background is a composite image of a city at night, with illuminated skyscrapers and residential buildings. The overall color palette is dominated by blues and oranges, with a bright light flare effect behind the man's head. The bottom of the image features abstract blue and cyan wave-like shapes.

社会责任管理

Social Responsibility Management

利益相关方沟通

Communication with Stakeholders

明阳智能高度重视利益相关方的关切问题，积极与利益相关方沟通。通过了解各利益相关方的诉求、意见和建议，将其关注的议题纳入公司的运营和决策过程，转化为公司可持续发展的行动目标和方案。

Mingyang Smart Energy attaches great importance to the concerns of stakeholders and actively communicates with them. Through understanding stakeholders' demands, opinions and suggestions, the Company incorporates the issues of their concern into its operation and decision-making process, and transforms them into its action objectives and plans for sustainable development.

利益相关方 Stakeholders	利益相关方期望 Stakeholders' Expectations	
 <p>股东及投资者 Shareholders and investors</p>	<ul style="list-style-type: none"> ● 完善的公司治理 ● 保障全体股东利益 ● 规范的信息披露 ● 持续稳定的利润分配 	<ul style="list-style-type: none"> Sound corporate governance To safeguard the interests of all shareholders Standard information disclosure Sustained and stable profit distribution
 <p>员工 Staff</p>	<ul style="list-style-type: none"> ● 保障全体员工权益 ● 提供职业发展机会 ● 建立人才培养机制 ● 创造良好工作环境 	<ul style="list-style-type: none"> To safeguard the rights and interests of all employees To provide career development opportunities To establish a talent training mechanism To create a good working environment
 <p>供应商 Suppliers</p>	<ul style="list-style-type: none"> ● 信守合约 ● 规范采购管理 ● 便利的渠道政策 ● 携手共赢的供应链关系 	<ul style="list-style-type: none"> Contract compliance Standardized purchase management Convenient channel policy Win-win supply chain relationship
 <p>客户 Customers</p>	<ul style="list-style-type: none"> ● 提供优质的产品和服务 ● 满足多元化需求 ● 持续创新的产品 ● 为客户创造价值 	<ul style="list-style-type: none"> To provide quality products and services To meet diversified needs Continuous innovative products To create value for customers



环境

Environment

- 践行绿色发展理念
- 绿色运营
- 保护环境
- 节能减排
- 与自然和谐发展

To implement the concept of green development

Green operation

Environmental protection

Energy conservation and emission reduction

Development in harmony with nature



公众及社区

Public and Community

- 造福社区、热心公益
- 国际能源合作
- 精准扶贫
- 创造社会服务价值

To benefit the community

International energy cooperation

Targeted poverty alleviation

To create social service value



政府及监管机构

Government and
Regulatory Agencies

- 积极响应国家战略
- 保障依法合规经营
- 促进民族产业发展
- 持续创造社会效益和经济价值

To respond positively to national strategies

To ensure operations in accordance with the law

To promote the development of national industries

To continue to create social benefits and economic value

实质性议题识别

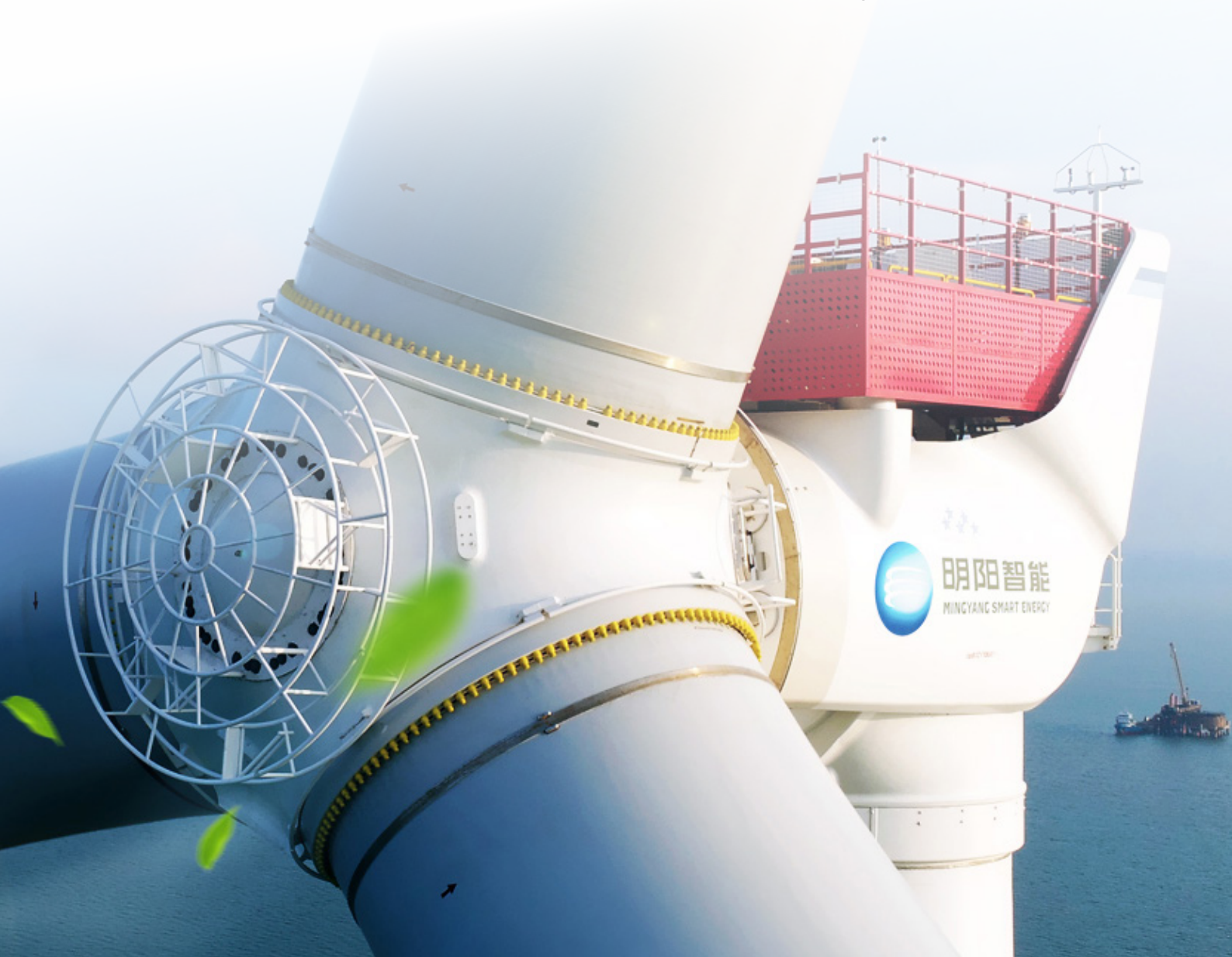
Report Acquisition

明阳智能将利益相关方的期望和诉求作为企业制定可持续发展战略的重要因素，采用多种方法来识别出与利益相关方有关的具体行动领域。

2018年，明阳智能在认真研究年度热点问题、国家政策、行业动态等内容基础上，根据公司的实际发展情况，比较研究同行业社会责任报告议题和实质性矩阵等内容，从“对公司的重要性”和“对利益相关方的重要性”两个维度，按照公司治理、经济、产品与服务、安全生产管理、员工、社会等方面对议题的重要程度进行评估，识别并筛选出对公司和利益相关方都重要的实质性议题，确定如下实质性矩阵。

Mingyang Smart Energy regards stakeholders' expectations and demands as important factors for its formulation of sustainable development strategies, and uses various methods to identify specific areas of action related to stakeholders.

In 2018, Mingyang Smart Energy, based on a careful study of hot issues, national policies, industry trends, etc. of the year and its actual development, made a comparative study of issues in social responsibility reports and substantive matrixes in the industry. From the two dimensions of "importance to the Company" and "importance to stakeholders", it assessed the importance of issues in such aspects as corporate governance, economy, quality of products and services, safe production management, employees and society, identified and screened out substantive issues important to the Company and stakeholders, and determined the following substantive matrix.

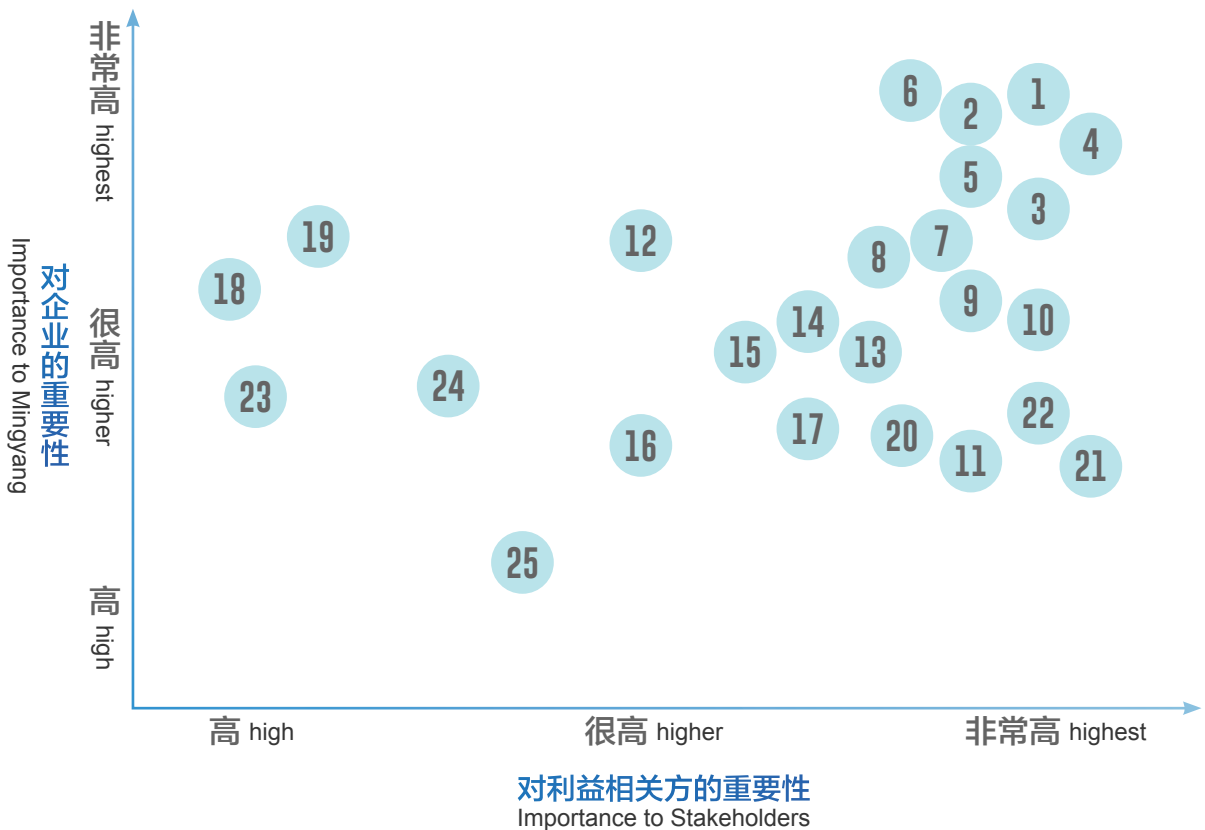




实质性议题识别流程 Substantive Issue Identification Process



实质性议题排序图 Sorting Chart of Substantive Issue



- 1 公司价值
Corporate value
- 2 客户满意度
Customer satisfaction
- 3 产品质量
Product quality
- 4 研发创新
R&D innovation
- 5 安全生产
Safety production
- 6 中小股东利益
Interests of minority shareholders
- 7 环境保护
Environmental protection
- 8 员工权益
Staff's rights and interests
- 9 公司治理
Corporate governance
- 10 气候变化
Climate Change
- 11 内部控制
Internal control
- 12 供应链管理
Supply chain management
- 13 供应商准入机制
Supplier access mechanism
- 14 绿色生产
Green production
- 15 党建工作
Party building
- 16 节约资源
Resource conservation
- 17 信息透明度
Information transparency
- 18 员工发展
Staff development
- 19 污废处理
Waste treatment
- 20 国际能源合作
International energy cooperation
- 21 精准扶贫
Targeted poverty alleviation
- 22 公益活动
Public welfare activities
- 23 企业文化建设
Enterprise cultural construction
- 24 员工关爱
Staff care
- 25 绿色办公
Green working



专题 新能源开发
助力粤港澳大湾区建设

New Energy Development to Boost GBA Construction

作为风电设备制造行业的引领者，明阳智能响应全球应对气候变化政策和国家能源战略，积极发挥新能源产业在优化能源结构和生态文明建设中的重要作用，坚定信念，并以清洁高效的能源体系打造绿色粤港澳大湾区。

临海，是湾区的最大特征。湾区能源布局，需要把海上能源建设列入海洋经济规划，成为主要构成。构建清洁低碳、安全高效的现代化能源体系，海上风电、洋流发电、潮汐发电、海水制氢、海水淡化等海上可再生能源应在湾区能源结构中大幅提升占比。同时广东省也在规划总规模达 66.85GW 海上风电装机量，此体量相当于三个“海上三峡”，可为广东产业体系新支柱和粤港澳大湾区建设提供绿色保障。

As a leader in the wind power equipment manufacturing industry, Mingyang Smart Energy responds to the global climate change policy and the national energy strategy and actively exerts the important role of new energy industry in optimizing the energy structure and constructing an ecological civilization. Mingyang Smart Energy has a relentless determination to build green Guangdong-Hong Kong-Macao Greater Bay Area (GBA) with clean and efficient energy systems.

Bordering the coast is the greatest feature of GBA. The structure of energy resources in GBA requires that offshore energy construction be included in the marine economic planning as the main component. To build a clean, low-carbon, safe and efficient modern energy system, offshore renewable energy sources, such as offshore wind power, ocean current power, tidal power, seawater hydrogen production and seawater desalination should take greater shares in GBA's energy structure. At the same time, Guangdong Province is planning 66.85GW offshore wind power installations, whose capacity is equivalent to three "Three Gorges on the sea", to provide eco-support for the new pillar of Guangdong's industrial system and the GBA construction.

能源供给侧结构性改革主要还是要突出新能源替代化石能源，新一轮高质量发展，必须是通过有效的、高水平的供给以及在政策保障上提供新能源供给。

The structural reform in energy supply should mainly focus on replacing fossil energy with new energy. The new round of high-quality development must supply high-level new energy effectively with supportive policies.

——全国人大代表、明阳智能董事长兼首席执行官张传卫

By Zhang Chuanwei
NPC Representative, Mingyang Smart Energy Chairman and CEO

明阳智能作为新能源企业，作为身处大湾区的全球新能源智慧化、普惠制领导企业，是大湾区发展的见证者、亲历者和受益者，27年来与大湾区同呼吸、共发展，需要肩负起粤港澳打造世界级一流绿色湾区的使命。在广东省委省政府赋予明阳智能承担广东海上风电大开发的使命下，公司以海上风电高端装备技术为载体，致力于为粤港澳大湾区建设提供绿色环境支撑，打造世界级海上风电技术创新中心和产业集群，构建海洋经济新支柱。

As an enterprise engaged in new energy as well as global leader of new energy intelligence and GSP in GBA, Mingyang Smart Energy has witnessed and benefited from the development of GBA. Growing hand in hand with GBA for 27 years, the Company is responsible for building GBA into a world-class green area. With the mission entrusted by the Guangdong Provincial Committee and the provincial government, by the strength of advanced offshore wind power equipment and technology, the Company is committed to providing a green environment to support the GBA construction, creating a world-class offshore wind power technology innovation center and industrial cluster, and building a new pillar for the marine economy.

公司海上风电建设取得重大成果

Milestones in Offshore Wind Power Construction

4月28日
April 28

我国海上风电最先进抗台技术的代表、全球风轮直径最大抗台风型风电机组——明阳智能MySE5.5-155机型顺利完成吊装

Mingyang Smart Energy MySE5.5-155, a representative of China's advanced anti-typhoon technology for offshore wind power and the world's largest anti-typhoon wind turbine in hubdiameter, was successfully hoisted.

5月11日
May 11

明阳智能与中广核新能源举行高层会晤就“全面深化合作、携手共赢发展”达成重要共识

Mingyang Smart Energy held a high-level meeting with CGNPC New Energy and reached an important consensus on "deepening cooperation in an all-round way and jointly achieving win-win development".

8月19日
August 19

明阳智能与国家电力投资集团公司在广州举行全面深化战略合作协议签字仪式

Mingyang Smart Energy and State Power Investment Corporation held the agreement signing ceremony for comprehensively deepening strategic cooperation in Guangzhou.

明阳智能 MySE5.5/7.0 MW 平台半直驱风电机组在广东粤电湛江外罗海上风电项目完成首台交付

The first Mingyang Smart Energy MySE5.5-7.0MW platform semi-direct drive wind turbine unit was delivered to Guangdong Energy Group's Wailuo Offshore Wind Power Project in Zhanjiang.

10月30日
October 30

明阳智能揭阳前詹 500MW 海上风电场项目、明阳智能揭阳惠来 500MW 海上风电场项目，总装机规模达 1,000MW

11月30日
November 30

Mingyang Smart Energy's 500MW Offshore Wind Farm Project in Qianzhan, Jieyang, and 500MW Offshore Wind Farm Project in Huilai, Jieyang, with a total installed capacity of 1,000 MW.

12月17日
December 17

明阳智能 MySE5.5-7.0MW 平台海上风电机组在兴化湾试验风场零故障一次性完成海上低穿测试

Mingyang Smart Energy My-SE5.5-7.0MW offshore wind turbine unit completed the sea low-wear test at one time in the test wind field Xinghua Bay with zero failure.

携手共建粤港澳大湾区绿色引擎——明阳智能成功开拓香港市场签订首单 CdTe 光伏合同

Mingyang Smart Energy Signs the First CdTe Photovoltaics Contract in HK to Jointly Offer a Green Engine for GBA Development

明阳智能以扎实的产业基础和科技创新积淀，朝着全球清洁能源智慧化、普惠制领军者目标不断迈进，希望携手香港绿墙深入展开全方位战略合作，加强整体解决方案运营模式和服务创新，加快推进标杆示范项目建设，为粤港澳大湾区光伏建筑一体化打造绿色引擎，助推能源消费型城市向能源生产型城市转变，为粤港澳共建国际一流湾区和世界级城市群贡献力量。



Based on its solid industrial foundation and technical innovations, Mingyang Smart Energy continuously makes strides towards becoming a global clean energy intelligence and GSP leader. The Company hopes that the in-depth all-rounded strategic cooperation with Hong Kong Green Wall will accelerate the innovation in overall solution operations and services, push forward the construction of benchmark demonstration projects, build a green engine for the integration of photovoltaic buildings in GBA, promote the transformation of energy-consuming cities into energy-producing cities, and contribute to the building of a world-class bay area and city cluster in Guangdong, Hong Kong and Macao.

专题

智慧风场建设 实现价值增值

Smart Wind Farms to Realize Growth in Value



明
阳
风
电

明阳智能将智慧风场定义为以场级的角度，通过对整场进行高精度建模，研究风场内运行的风机与场内气流的关系，针对特定机位的精准化需求去进行定制化的配置，合理控制场级实现整场出力最大化，从而高效地利用风能，并降低设备载荷进而控制成本，最大化实现投资收益。

智慧风场的最终目的是降低 LCOE（平准化度电成本），可通过两种方式实现：一是提升发电量，二是降低成本。通过风资源仿真技术，明阳智能提升发电性能，降低机组成本和风场建设成本。利用智慧化运维新模式，明阳智能提高机组可利用率，并且降低运维成本。在当前竞价上网的时代，通过智慧化的运维模式降低整体的成本，提高发电量。

明阳智能构建机组运行数据等多样性的数据仓库，包括机组运行数据库、数据共享平台、数据算法库、数据分析平台、数据分析与挖掘技术传导、业务点合作分析等，协助各业务部门展开以机组可靠性为中心的数据挖掘与预警建模。

公司推出的“大数据”平台，以“互联网+”模式及物联网技术为基础，依托大数据分析技术，实现了风电专业知识有效重组。明阳智能大数据中心是目前国内领先的风电数据平台，能实现从气象预测、到风机健康状态监测预警、到风电优化运行，再到风电场群的协同调度。



and the airflow, and thus the maximum output of the farm can be realized through farm-level control with customized configurations, thereby efficiently utilizing wind energy, reducing the load of equipment and further controlling the cost, and maximizing the income on investment.

The ultimate goal of the smart wind farm is to reduce LCOE (leveling power cost), which is reachable in two ways: to increase power generation and to reduce cost. Through the wind resource simulation technology, Mingyang Smart Energy has improved the power generation performance and reduced the unit cost and wind field construction cost. Under the new intelligent operation mode, the Company has improved the availability of units and reduced the operation and maintenance costs. In the era of online bidding, the Company has reduced the overall costs and increased the power generation through its intelligent operation mode.

Mingyang Smart Energy has built a data warehouse of diverse unit operation data, including a unit operation database, a data sharing platform, a data algorithm library, a data analysis platform, data analysis and mining technology transmission, business point cooperation analysis, etc. to assist different business departments in data mining and early warning modeling centered on unit reliability.

The Company's "big data" platform has realized the effective reorganization of wind power professional knowledge based on the "Internet plus" model and the Internet of Things technology, and relying on big data analysis technology. Mingyang Smart Energy's Big Data Center is currently a leading wind power data platform in China. It can perform meteorological forecast, wind turbine health monitoring and early warning, wind power optimal operation and the cooperative scheduling among wind farm clusters.



2018年，基于企业级私有云平台，公司以大数据技术为核心，通过软件系统和物联网技术实现横向多源互补，纵向源—网—荷—储—一体化，让能源更加智慧、清洁、灵活和高效的同时大幅降低用能成本，让更多民众共享清洁能源带来的福利。

In 2018, based on its own cloud platform, with big data technology as the core, the Company realized the multi-source mutual energy supply as well as the source-network-load-storage integration with software and the Internet of Things technology. It delivers smarter, cleaner, more flexible and efficient energy with reduced energy consumption costs, benefitting more people with clean energy.

深度数字化解决方案解题“竞价”时代

An In-depth Digital Approach to the “Bidding” Era

通过数字化解决方案，明阳智能为客户提供定制化、更智能、收益率最优的服务。为应对行业变革发展趋势，公司将发布应对竞价上网时代的最新数字化风场整体解决方案，推出依托智慧大数据进行收益率测算的电价评估平台。该平台还将破解分散式风电开发测风难题，可通过嵌入智能化算法系统，在无测风数据的情景下进行集中式风电场微观选址和分散式风电场设计。此外，凭借丰富的工程经验和稳健的科学算法让决策更智能，可实现陆上、海上风电场自寻优布机、道路和集电线路自寻优设计，为客户精准锁定收益率最佳的风电场机组选型和机位方案。

Digital solutions enable Mingyang to provide tailored, smarter and best-yielding services to customers. To adapt to the industry's future trends, the Company will release the latest digital wind farm overall solutions against the backdrop of online bidding and introduce an electricity price evaluation platform, which calculates the rate of return using big data technology. The platform will also bring a solution to the unpractical wind measurement for decentralized wind power development by embedding an intelligent algorithm system to conduct centralized wind farm micro-location and decentralized wind farm design without wind measurements. In addition, the Company will make smarter decisions by virtue of its rich engineering experience and robust scientific algorithms, so as to render the automatic planning of onshore and offshore wind farms and the automatic optimization design of roads and collector lines. In this way, customers will enjoy the most profitable wind farm and unit configurations and location schemes.

智慧运维——定制化产品种类齐全与全生命周期解决方案，适应不同风电场和特殊气候条件。

Intelligent Operation and Maintenance – A Full Range of Customized Products and Full-cycle Solutions Adaptive to Different Wind Farm and Climate Conditions

智慧运维是一种便捷、高效、透明、互联的运维方式。利用企业级的私有云平台，以数据为基石，采用端到端解决方案，实现对分布广、规模大的风电设备的全面信息互联和智能分析，让客户轻松掌握生产运行情况，享受便捷、高效、透明、互联的运维方式。

风机全生命周期解决方案，基于监控系统获得的海量数据，采用机器学习等核心算法，实现机组健康隐患以及故障预测，建立预警机制，通过预防性的维护和维修，减少非计划停机时间，避免重大部件的损坏和发电量的损失，持续提升风电场精益化管理能力。

公司按照需求研究、需求引导、需求解决方案、需求有效管控的原则，为客户提供全生命周期的定制化整体解决方案，通过建立大数据平台与风场在线监控系统，对已售机组各部件运行状态及数据进行实时监测与分析，依据部件寿命特性提前做出运维判断，选择在小风期开展维护工作，从而提前避免故障发生，提升机组的可利用率；并将控制策略与互联网技术、大数据、云存储前沿技术融合，进行资源评估、定制化设计、风电场优化、智能风场管理，致力于推进无人值守智慧风电场建设。公司建立风场运维管理平台，实现对风场从设备运输、安装、调试和运维全过程透明化管理，利用互联网、云存储及大数据分析等技术，重点打造风机远程监控、机组在线状态检测、远程故障诊断与修复、风功率预测、视频监控等系统，实现风机及风场的智能化管理目标。

Intelligent operation and maintenance is a convenient, efficient, transparent and interconnected operation and maintenance method. Using an enterprise-class private cloud platform, taking data as the cornerstone and adopting an end-to-end solution, the mode can realize the comprehensive information sharing and analysis of widely distributed large wind power equipment. Customers can easily know the production and operation conditions with this convenient, efficient, transparent and interconnected operation and maintenance mode.

Based on the massive data obtained by the monitoring system, the full-cycle solution for wind turbines adopts such core algorithms as machine learning to predict risks and faults of the unit and establish an early warning mechanism. Through preventive maintenance and repair, it can shorten the unplanned downtime, avoid the damage of major components and the loss of power generation, and continuously improve the lean management capability of the wind farm.

Following the principles of demand orientation and management, the Company provides customers with customized overall solutions covering the whole life cycle. Through the established big data platform and an online wind farm monitoring system, the Company can monitor and analyze the running status and data of all components of the sold units in real time, judge the life of the component according to its characteristics and carry out maintenance work in breeze periods, thus avoiding faults in advance and improving the availability of the units. The Company has also integrated its strategy with the Internet, big data and cloud storage technologies to facilitate resource evaluation, customization, wind farm optimization and intelligent wind farm management. It is dedicated to promoting the construction of unattended intelligent wind farms. Established a wind farm operation and maintenance management platform, the Company has realized transparent management of the whole process of wind farm, from equipment transportation, installation and commissioning to operation and maintenance. Empowered by the Internet, cloud storage and big data analysis technologies, the Company is focusing on constructing remote fan monitoring system, on-line unit detection system, remote fault diagnosis and repair system, wind power prediction system, video monitoring system, etc. to realize intelligent management of fans and wind farms.

能动 · 公司治理

Dynamic·Corporate Governance



公司治理体系

Corporate Governance System

明阳智能根据《公司法》《证券法》《上市公司治理准则》等法律、法规及规范性文件的要求，建立了由股东大会、董事会、监事会和公司管理层组成的健全、完善的法人治理结构，形成了权力机构、决策机构、监督机构与经营层之间权责分明、各司其职、有效制衡、科学决策、协调运作的公司治理体系，制定了完整、规范的议事、决策、授权、执行的规则和程序。

According to the requirements of laws, regulations and normative documents such as the Company Law, the Securities Law, the Corporate Governance Guidelines for Listed Companies and others, the Ming Yang Smart Energy established a sound and perfect corporate governance structure composed of the General Meetings of Shareholders, the Board of Directors, the Board of Supervisors and the Company's Management, formed a corporate governance system with clear division of powers and responsibilities, performance of functions, effective checks and balances, scientific decision-making and coordinated operation between the power organs, decision-making bodies, supervisory organizations and management levels and formulated complete and standard regulations and procedures for deliberation, decision-making, authorization and execution.

股东大会

The General Meetings of Shareholders

股东大会作为公司的最高决策机构，为维护公司与股东的合法权益，严格按照《公司章程》《上市公司股东大会规则》规定的程序规范运行，科学民主地进行各项决策。公司保证所有股东特别是中小股东享有平等地位，对公司重大事项有知情和参与的权利，并确保所有股东能够充分行使自己的权利，保证了股东大会的合法有效性。2018年，公司召开了7次临时股东大会和1次年度股东大会，审议通过了35项议案，包括《2017年度董事会工作报告》《2017年度监事会工作报告》《独立董事述职报告》等。

As the highest decision-making body of the company, the Shareholders' Meeting, in order to safeguard the legitimate rights and interests of the company and shareholders, operates in strict accordance with the procedures stipulated in the Articles of Association and the Rules for the General Meetings of Shareholders of Listed Companies and makes various decisions scientifically and democratically. The company ensures that all shareholders, especially small and medium shareholders, enjoy equal status, have the right to know and participate in major issues of the company, and guarantee that all shareholders can fully exercise their rights, thus ensuring the legal validity of the General Meetings of Shareholders. In 2018, the company held 7 Extraordinary General Meeting of Shareholders and 1 Annual General Meeting of Shareholders, and deliberated and passed 35 proposals, including the Report On the Work of the Board of Directors in 2017, the Report On the Work of the Board of Supervisors in 2017, and the Report On the Work of the Independent Directors and others.

董事会

The Board of Directors

董事会是公司的决策机构，公司董事的选聘严格遵照《公司章程》的规定，董事会的人数和人员构成符合法律、法规的要求。所有董事会成员皆具备履行职责所需的专业知识，并拥有丰富的经营管理经验，忠实、诚信、勤勉地履行职责。2018年，公司共召开了14次董事会，审议通过了33项议案，包括《关于新增关联交易的议案》《关于向控股子公司提供担保的议案》《关于确认2015年度、2016年度、2017年度申报财务报表及财务报表附注并批准报出的议案》等。

The Board of Directors is the decision-making body of the company. The selection of directors of the company shall be in strictly compliance with the provisions of the Articles of Association. The number and composition of the Board of Directors shall meet the requirements of laws and regulations. All members of the Board of Directors shall have the necessary professional knowledge to perform their duties and rich experience in operation and management so as to faithfully, honestly and diligently perform their duties. In 2018, the company held a total of 14 board meetings and deliberated and passed 33 proposals, including the Proposal on New Related Party Transactions, the Proposal on Guarantee to Holding Subsidiaries, and the Proposal on Confirmation, Approval and Issuance of Financial Statements and Notes to Financial Statements Reported in 2015, 2016 and 2017 and others.

监事会

The Board of Supervisors

监事会作为公司的监督机构，监事会的人数和人员构成符合法律、法规和《公司章程》的规定和要求。2018年，公司共召开了10次监事会，审议通过了10项议案，包括《关于预计2018年度日常关联交易的议案》《2017年度监事会工作报告》《关于对2016年预计负债调整的会计处理进行差错更正并对财务报表进行追溯调整的议案》等。

As the supervisory organization of the company, the number and composition of the Board of Supervisors shall conform to the provisions and requirements of laws, regulations and the Articles of Association of the company. In 2018, the company held a total of 10 meetings of the Board of Supervisors and deliberated and passed 10 proposals, including the Proposal on Expected Daily Related Party Transactions in 2018, the Report on the Work of the Board of Supervisors in 2017 and the Proposal on Error Correction during Accounting of Estimated Liability Adjustment in 2016 and Retrospective Application on Financial Statements and others.



内部审计与反腐败

Internal Audit and Anti-Corruption

内部审计

Internal Audit

明阳智能制定《内部审计奖惩制度》，规范集团内部审计工作，进一步落实和明确各岗位的责、权、利关系。2018年，公司开展多项内部审计事项，有效地规范各项经营管理行为，调动员工的积极性，同时规避风险，减少财产、权益损失。

The Ming Yang Smart Energy formulates the Internal Audit Reward and Punishment System, standardizes the internal audit work of the Group, and further implements and clarifies the responsibility, authority and benefit of each post. In 2018, the company carried out a number of items of internal audits to effectively regulate various operating management practices, mobilize the enthusiasm of employees, avoid risks and reduce losses related to property and rights and interests.

反腐败与廉洁防控

Anti-corruption and Integrity Prevention and Control

公司制定《反舞弊管理制度》，规范集团治理层、管理层及所有员工职业行为，促使全体员工严格遵守相关法律法规、集团规章制度及职业道德，树立廉洁自律和勤勉尽责的良好风气，坚决抵制、打击损害集团利益、谋取个人私利的舞弊行为。

The company formulated the Anti-Fraud Management System to standardize the professional behaviors of the governance, management and all employees of the Group, to urge all employees to strictly abide by relevant laws and regulations, regulatory frameworks of the Group and professional ethics, to establish a good atmosphere of honesty and self-discipline and diligence, and to resolutely resist and crack down on frauds that damage the interests of the Group for personal gains.



反舞弊工作 Anti-Fraud Work

倡导忠诚敬业、营造反舞弊的企业文化环境

Advocating loyalty and professionalism and creating an anti-fraud corporate culture environment

评估舞弊风险并建立具体的控制政策和程序，以降低舞弊风险的发生

Assessing fraud risks and establishing specific control policies and procedures to reduce the occurrence of fraud risks

建立反舞弊工作常设机构，进行舞弊举报的接收、调查、报告和提出处理意见，并接受审计委员会、董事会的监督

Setting up a permanent anti-fraud organization to receive, investigate, report and put forward handling suggestions on fraud reports, and accept the supervision of the Audit Committee and the Board of Directors

公司在充分征求各子公司及各职能部门自评意见的基础上，结合现有各级管理机构、岗位设置情况，编制了《明阳智能投资控股集团廉洁风险防控手册》。手册内容基本涵盖了采购、销售、工程等经营管理的关键领域和关键环节以及所有重要工作岗位，同时根据廉洁风险行为发生的频率和危害程度高低，将风险点由高到低依次划分为A（重大风险）、B（较高风险）、C（一般风险）三个等级，并有针对性地制定了相应防控措施。

2018年，公司多次开展守法合规培训及其活动，包括明阳智能集团干部大会等。

functional department, and in combination with the existing management organizations at all levels and the post setting situations, the company compiled the Integrity Risk Prevention and Control Manual for Ming Yang Smart Investment Holding Group. The contents of the Manual basically cover the key areas and links of operation and management such as procurement, sales and project, as well as all important work posts. Meanwhile, according to the frequency of occurrence and harm degree of integrity risk behaviors, the risk points are divided into three levels from high to low, namely, A (major risks), B (higher risks) and C (general risks), and corresponding prevention and control measures are formulated accordingly.

In 2018, the company carried out many trainings and activities related to obedience of and compliance with law, including the official meeting of Ming Yang Smart Energy Group.



党建工作

Party Construction

2018年，明阳智能积极响应党的号召，积极开展新春座谈会、学习参观松德智慧装备股份有限公司和广东奥马电器股份有限公司、优秀党员党支部表彰等活动，弘扬了社会正能量，传递了正确价值观，激发了广大员工的爱国情怀。

In 2018, Ming Yang Smart Energy actively responded to the call of the Party, actively carried out activities such as the New Year Symposium, the study tour to the Sotech Smarter Equipment Co., Ltd., Guangdong Homa Appliances Co., Ltd., and participation in the commendation meeting of outstanding Party member of Party branches and others, which promoted positive social energy, delivered correct values and stimulated the patriotic feelings of the majority of employees.

为祖国喝彩！观看爱国主义影片《厉害了，我的国》

Cheer for the Motherland! Watch the patriotic film Amazing China

2018年3月，明阳智能组织近两百名员工前往佰汇广场华艺影城观看爱国主义影片《厉害了，我的国》。此次观影，不仅让员工感受到了祖国十八大以来的新时代风采，更增强了大家的爱国情怀，作为强国制造建设的参与者，员工们纷纷为祖国所取得的辉煌成就点赞，身为中国人的自豪感油然而生，纷纷表示在今后的工作中，不忘初心，牢记使命，担当作为，能动奉献，努力实现“明阳梦”。

In March 2018, Ming Yang Smart Energy organized nearly 200 employees to watch the patriotic film Amazing China in Huayi Cinema of Baihui Plaza. The film not only enabled the employees to feel the elegant demeanor of the new era since the 18th National Congress of the Communist Party of China but also strengthened their patriotic feelings. As participants in the manufacturing and construction of a powerful country, employees praise the brilliant achievements made by the Motherland one after another. As a Chinese, pride arises spontaneously. They say that in the future work, they will stay true to the mission and keep it in mind, take on their responsibilities, be dynamic and dedicate themselves to the realization of "Ming Yang Dream".



组织学习贯彻习近平总书记重要讲话精神

Organized to Study and Implement the Guiding Principles from General Secretary Xi Jinping's Major Speeches

2018年，公司上下迅速兴起学习宣传贯彻习近平总书记重要讲话精神的热潮，切实把思想和行动统一到总书记重要讲话精神上来，各单位以集中学习、专题讨论、座谈交流等形式反复学习讨论，在工作中用实际行动践行习近平总书记“发展是第一要务，人才是第一资源，创新是第一动力”的讲话精神，发挥明阳智能作为全球领先的清洁能源整体解决方案提供商的排头兵作用。3月9日，全体党员干部在总部大楼多功能报告厅，集中组织学习贯彻习近平总书记参加十三届全国人大一次会议广东代表团审议时的重要讲话精神。

In 2018, there was a rapid upsurge in studying, publicizing and implementing the guiding principles from General Secretary Xi Jinping's major speeches, and the company effectively integrated its thoughts and actions into the guiding principles from General Secretary Xi Jinping's major speeches. Each unit has repeatedly studied and discussed in the form of massed learning, seminar, symposium, and has put into practice the guiding principles from General Secretary Xi Jinping's major speeches that "development is the top priority, talents are the first resource, and innovation is the primary driving force" in its work, giving full play to the leading role of the Ming Yang Smart Energy as a global leading provider of total clean energy solutions. On March 9, all party members and officials gathered in the multi-functional conference hall of the headquarters building to study and implement the the guiding principles from General Secretary Xi Jinping's major speeches when he attended the deliberation of Guangdong delegation at the First Session of the 13th National People's Congress.





能动 · 产品责任

Dynamic Product Responsibility

服务感动客户

Move the Customer with Service

公司上下全面贯彻“以客户为中心、为客户创造价值”的价值理念，运用明阳智能已有优势，洞察市场需求，创造市场机会并抓住目标客户，构建新型的政府、客户、供应商与制造商的利益共享、合作发展机制。

The entire company should fully implement the value concept of "taking customers as the center and creating value for customers", apply the advantages of Ming Yang Smart Energy, gain insight into market demand, create market opportunities and seize target customers, and build a new mechanism of benefit sharing and cooperative development between the government, customers, suppliers and manufacturers.



在产品支持方面，明阳智能提供风资源及环境分析、机组设计与造型、微观选址、风电场建设、后评估与优化等垂直一体化的全生命周期解决方案，为客户提供垂直化全方位的服务，同时开拓新能源领域高附加值的蓝海市场。

In terms of product support, Ming Yang Smart Energy provides vertically integrated full life cycle solutions such as wind resources and environmental analysis, unit design and modeling, micro-sitting selection, wind farm construction, post-evaluation and optimization, and others, providing customers with vertical and all-round services while exploring the Blue Ocean Market with high added value in the new energy field.



全生命周期解决方案 Full Life Circle Solutions

数据准确性
Data Accuracy

测风准确性
Wind Measurement Accuracy

风资源分析方案准确性
Accuracy of Wind Resource Analysis Scheme

复杂地形与气候环境条件的影响
Influence of Complex Terrain and Climate and Environmental Conditions

打破传统单一机组排列思路，通过不同单机容量、不同塔筒高度混排布置方案

With breaking the traditional unit arrangement for financing, various arrangements are established by mixing capacities, impeller diameters and tower heights



风资源及环境分析
Wind Resources and Environmental Analysis



机组设计与造型
Unit Design and Modeling



微观
Micro-sitting



单机容量——不同容量单机比选
Unit Capacities: Comparison and Selection of Single Machines with Different Capacities

叶轮直径——尾流及地形条件差异化布置
Impeller Diameters: Differential Arrangement of Wake and Topographic Conditions

功率曲线——动态功率曲线
Power Curve: Dynamic Power Curve

塔筒重量——按照风况特征采用新型技术进行设计
Tower Weight: Design According to Wind Conditions Using New Technologies

基础类型——结合风况、地质条件，进行匹配性定制化设计
Foundation: Matching and Customized Design Based on Wind Conditions and Geological Conditions

布寻找最优布置的
容量、不同叶轮直
塔的方式建立多种

ional idea of single
ding the optimal ar-
angement schemes
ng different unit
meters and tower

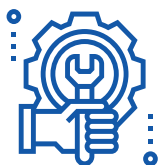
基础工程成本控制
Cost Control of Foundation Works

运维管理
Operation and Maintenance Management

塔架与基础设计
Tower and Foundation Design

运输与道路方案优化
Transportation and Road Plan Optimization

选址
g Selection



风电场建设
Wind Farm Construction



后评估与优化
Post-evaluation and Optimization

后评估——挖掘和提升风电场潜力，降低运营成本
Post-evaluation: Exploiting and Promoting Potential of Wind Farm and Reducing Operating Cost

控制策略——发电量提升与载荷降低
Control Strategy: Power Generation Increase and Load Decrease

电网接入——智能能量管理平台
Access to Grid: Intelligent Energy Management Platform

效能提升——控制系统优化
Efficiency Improvement-Control System Optimization

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此外，以大数据平台为基础的智慧风场建设，也极大地支持了客户服务的优化。在明阳智能大数据中心全球气象预测平台面前，台风成为有效能量捕捉的来源，不仅能确保台风不造成风电发电机组损失，还能利用台风多发电，为客户创造更多的价值。

而遍布全国的基地及生产车间，也为客户提供便捷服务。明阳智能贴近客户、贴近资源、贴近市场，立足广东，在全国范围内建设成立了吉林、天津、云南、江苏、甘肃、内蒙、锡盟、青海、新疆、河南等十大制造基地和区域运维服务基地，形成了涵盖全国的产业布局，以更快的速度、更优质的服务，赢得客户的尊重。

In addition, the smart wind farm construction based on big data platform also greatly facilitates the optimization of customer service. In front of the Ming Yang Smart Energy Global Weather Forecast Platform of Big Data Center, typhoons have become a source captured for available energy, which can not only ensure that typhoons do not cause damages to wind turbine generators but also generate more power by using typhoons and create more value for customers.

And, bases and production workshops all over the country also offer convenient services for customers. Ming Yang Smart Energy is close to customers, resources and markets. Based on Guangdong, It has established 10 manufacturing bases and regional operation and maintenance service bases in Guangdong, Jilin, Tianjin, Yunnan, Jiangsu, Gansu, Inner Mongolia, Xilingol League, Qinghai, Xinjiang, and Henan, which formed an industrial layout covering the whole country and won the respects from customers with faster speed and better service.



内蒙基地
Inner Mongolia Service Base



江苏基地
Jiangsu Service Base



甘肃基地
Gansu Service Base



天津基地
Tianjin Service Base



阳江基地
Yangjiang Service Base



云南基地
Yunnan Service Base



中山基地
Zhongshan Service Base

明阳智能坚持开展客户培训，不仅为客户提供优质产品，更以专业化知识和丰富经验回馈客户。2018 年公司共开展涉及 34 个项目的 17 次客户培训，总人数达 294 人。

Ming Yang Smart Energy insists on carrying out customer training so as to not only provide customers with high-quality products but also offer professional knowledge and rich experience for them. In 2018, the company conducted 17 customer trainings involving 34 projects with a total number of 294 people.



产品质量管理

Product Quality Management

明阳智能秉持“一个螺丝钉决定一个公司的价值！用真诚营造以卓越品质为内涵的明阳品牌”的质量理念，追求精益制造，在质量管理方面，强调过程控制、质量成本管理，采用航空制造的高效品质管理模式，每一台整机都经过严格的地面检验与调试，利用产品先期质量策划（APQP）、潜在失效模式和后果分析（FMEA）、统计过程控制（SPC）和防错方法来预防缺陷的发生，产品制程一次合格率达 99.8%，整机交付合格率达 100%，严谨严格的质量管理不仅减少质量损失避免重复使用资源，同时能保证每一台风机持续稳定的运行，保证用户侧有稳定的电源输出。

公司风电机组生产采用基于订单的快速响应的拉动式生产模式，将精益管理体系导入到研发与设计、营销与服务、制造与物流、工程与运维全价值过程中，同时借鉴 TS16949《质量管理体系——汽车行业生产件与相关服务件的组织实施 ISO9001:2000 的特殊要求》来规范质量管理。

Ming Yang Smart Energy adheres to the quality philosophy of "A screw determines the value of a company! Creating Ming Yang Brand with Excellent Quality as Connotation with Sincerity", pursues the lean production, emphasizes the process control and quality cost management in terms of quality management, adopts the efficient quality management mode of aeronautical manufacturing, conduct strict ground check and debugging for every complete machine and apply the Advanced Product Quality Planning (APQP), Failure Mode and Effects Analysis (FMEA), Statistical Process Control (SPC) and error-proofing method into the prevention against defects. **The first pass yield of the product manufacturing process reaches 99.8% and the delivery pass rate of the whole machine reaches 100%.** Rigorous and strict quality management will not only reduce quality loss and avoids reuse of resources but also ensure the continuous and stable operation of each fan and steady power output at the user side.

The wind turbine generator production in the company is adopted with a pulling production mode based on quick response to orders. Lean management system is introduced into the whole value process of research & development and design, marketing and service, manufacturing and logistics, engineering and operation and maintenance. Meanwhile, quality management is regulated with reference to the TS16949 "Quality Management System- Special Requirements for Organization and Implementation of ISO 9001: 2000 of Production Parts and Related Service Parts in Automobile Industry".



质量就是生命，质量是企业的基石。谁动了质量，就等于动了企业基石，我会以我个人的职业担当来捍卫它（公司的生命线）。尤其是风机这样高端智造产品，一出生就决定它的一生，对于风机产品质量来说只有 100%，没有“差不多”，100 减 1 不等于 99，100 减 1 是 0。

Quality is not only the life but also the cornerstone of an enterprise. Damaging the quality means moving the corporate cornerstone, I will defend it (the lifeline of the company) with my own professional responsibility. In particular, the manufactured high-end smart products such as the fans have their life determined from the birth. For the quality of fan products, it is only 100% and not "about the same". 100 minus 1 does not equal 99 while 100 minus 1 is 0.

——明阳智能执行总裁兼首席技术官张启应

By Zhang Qiyong,
Chief Executive Officer and Chief Technology Officer of Ming Yang Smart Energy

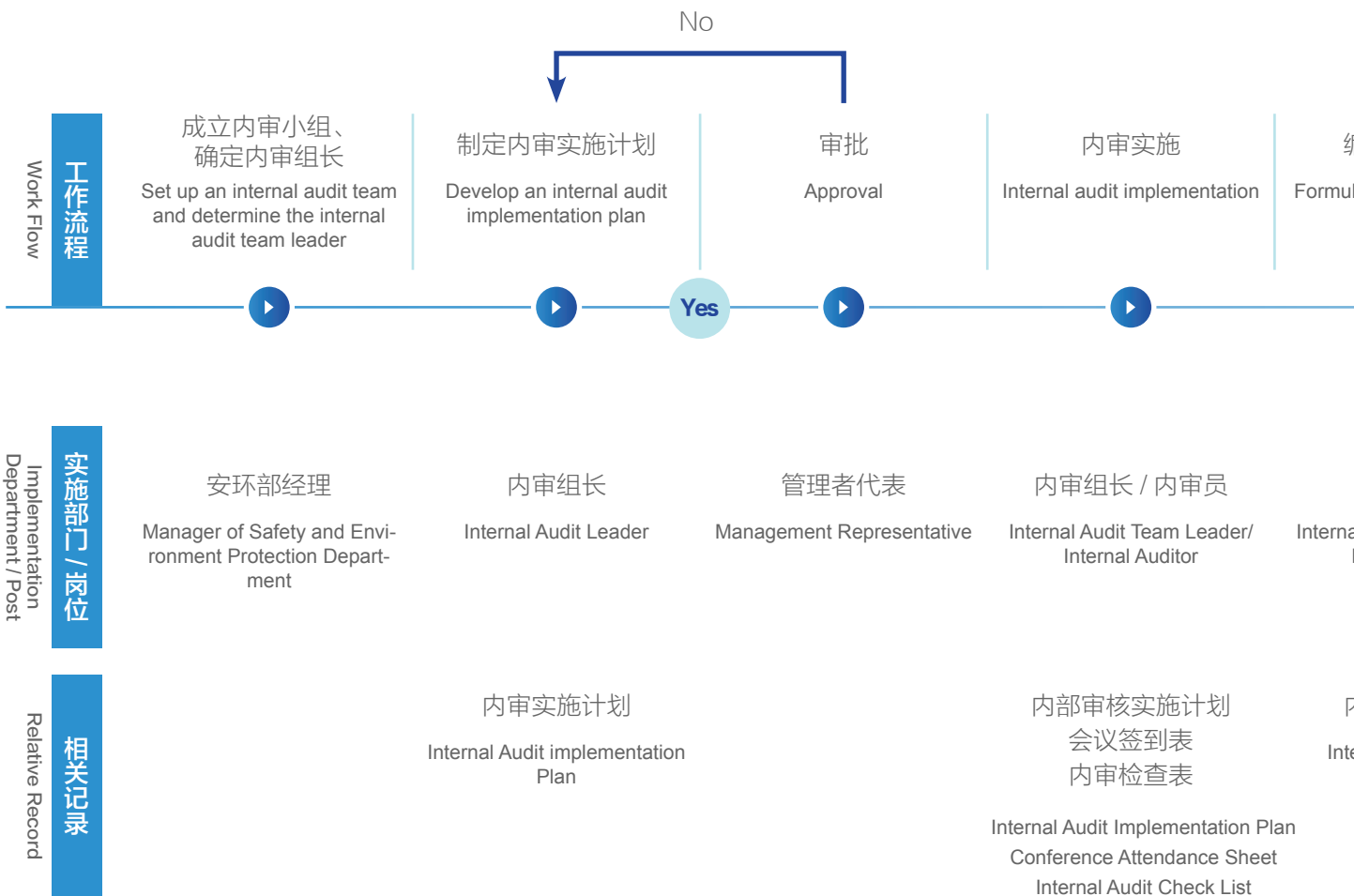


安全生产管理

Safety Production Management

安全生产是一切工作的保障，切实抓好安全生产，全面落实安全生产责任制，遏制事故的发生，是明阳智能实现可持续发展和承担社会责任的具体要求。明阳智能促使全体员工树立正确的安全生产意识，构建并完善环境健康安全（以下简称 EHS）制度，建立突发事件预警机制，开展多项安全生产培训，将各项安全工作落到实处。

Safety in production is the guarantee for all works and is the specific requirement for Ming Yang Smart Energy to realize sustainable development and assume social responsibility to earnestly carry out safety in production, fully implement the responsibility system for safety in production and contain accidents. Ming Yang Smart Energy urges all employees to establish a correct awareness of production safety, construct and improve the Environment Health Safety (hereinafter referred to as EHS) Management System, set up an early warning mechanism for unexpected accidents, carry out a number of safety production trainings and put all safety works into practice.

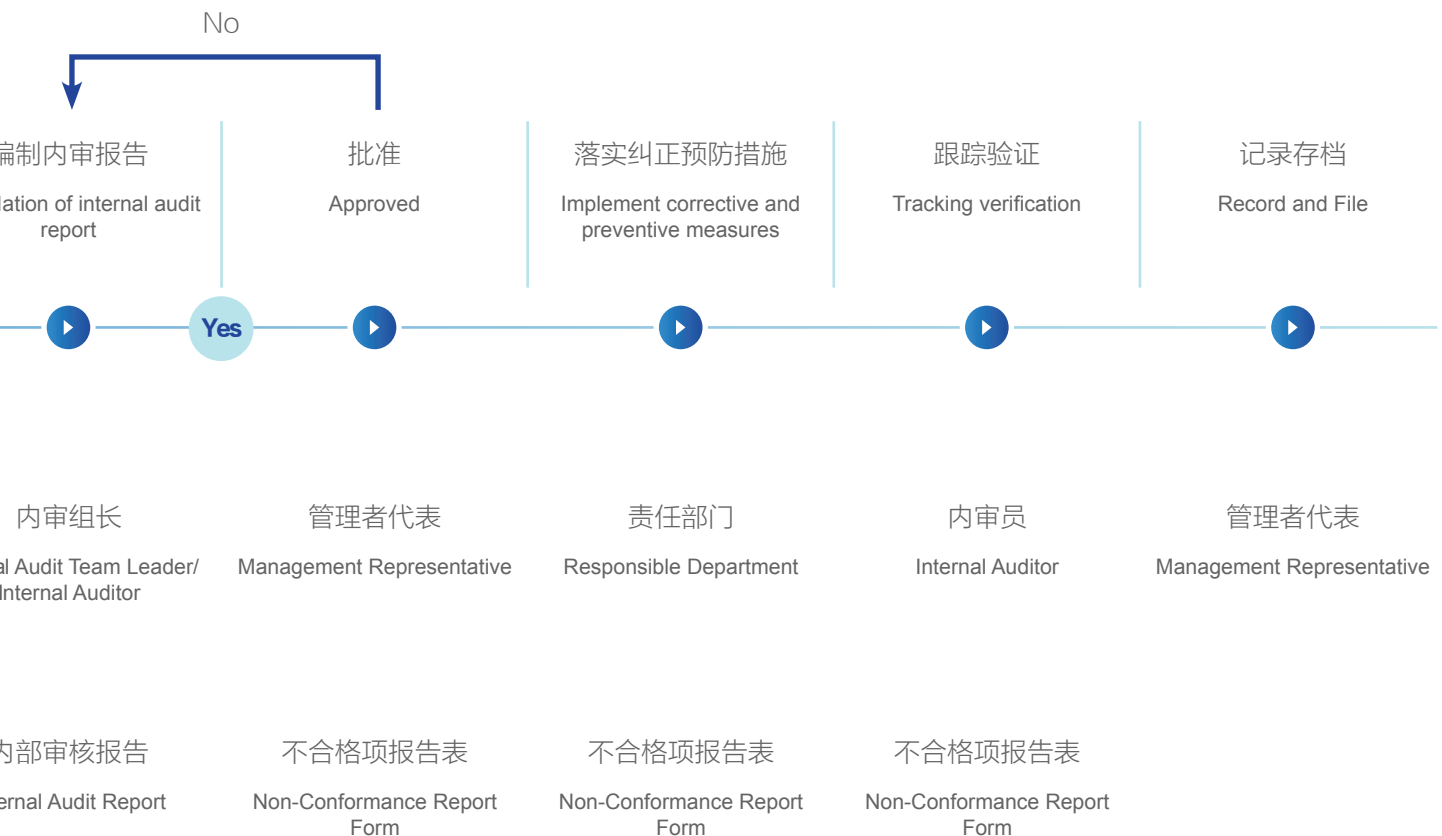


EHS 制度建设

Construction of EHS System

为落实集团各单位安全主体（集团监管、单位主责），达成年度安全管控目标，根据公司运营变化，2018 年对安全管理组织架构进行了优化调整，并完善控制流程，以保障公司 EHS 工作稳健开展。

In order to implement the safety subjects (group supervision, unit responsibility) of each unit of the Group and reach the annual safety control target, the safety management organizational structure was optimized and adjusted in 2018 according to the company's operating changes and the control flow was improved to ensure the steady development of the company's Environmental Health Safety (EHS) Management.



突发事件处理

Unexpected Accident Treatment

公司建立有效的事故事件调查处理机制，自上而下明确各层级职责，采取有效的纠正和预防措施，防止同类事故和事件的发生，提升各种事故处理能力、防范能力。

The company establishes an effective accident investigation and treatment mechanism, defines the responsibilities of all levels from top to bottom, and adopts effective corrective and preventive measures to prevent the occurrence of similar accidents and incidents and improve the handling and prevention capabilities of various accidents.



各层级职责响应 Responsible Responses of all Levels

- 总经理 / 副总经理负责组织、协调各类事故、事件的抢救、调查及处理工作。
The General Manager / Deputy General Manager is responsible for organizing and coordinating the rescue, investigation and treatment of various accidents and incidents.
- 安环部参加事故、事件处理工作，组织召开各类事故责任人员责任划分分析会，根据公司有关条例，形成对责任者进行行政处分决议。
The Safety and Environment Protection Department participates in accident and incident treatment and organizes and holds an analysis meeting on the division of responsibilities of the responsible personnel for various accidents, and form a resolution on administrative sanctions against the responsible personnel according to the relevant regulations of the company.
- 安全主任是事故、事件的归口管理人员，负责组织事故事件发生后的原因分析、调查处理。组织、督促制定、实施事故事件纠正与预防措施；负责确认在实施纠正与预防措施前所进行的风险评价，并对纠正与预防措施完成后跟踪验证。

The safety director is the centralized manager of accidents and incidents, and is responsible for organizing the cause analysis, investigation and treatment of accidents and incidents, organizes and urges the formulation and implementation of corrective and preventive measures for accidents; is responsible for confirming the risk evaluation before implementing corrective and preventive measures, and tracking and verifying the completion of corrective and preventive measures.

- ▶ 安环部负责传达上级政府主管部门的各项相关政策，负责各类事故、事件上报工作。

The Safety and Environmental Protection Department is responsible for conveying all relevant policies of the higher-level responsible government department and reporting all kinds of accidents and incidents.

- ▶ 责任部门负责第一时间报告发生的事故、事件，参与发生在本部门的各类事故、事件的原因分析，制订并实施纠正与预防措施。

The responsible department is responsible for reporting the accidents and incidents in the first place, participating in the cause analysis of all kinds of accidents and incidents in the department, and formulating and implementing corrective and preventive measures.

安全生产培训

Safety Production Training

明阳智能为加强和提高从业员工对作业场所职业危害的防范意识和防范技能，预防和控制职业危害，保护劳动者的健康，根据《职业病防治法》《作业场所职业健康监督管理暂行规定》等法律、法规的规定，2018年多次开展EHS培训。

In order to strengthen and improve employees' awareness and skills of prevention against occupational hazards in workplaces, prevent and control occupational hazards, and protect workers' health, Ming Yang Smart Energy carried out the EHS training several times in 2018 in accordance with the provisions of laws and regulations such as the Law on Prevention and Control of Occupational Diseases and the Interim Provisions on Supervision and Administration of Occupational Health in Workplaces.

青海明阳冬季消防知识培训

Qinghai Ming Yang Conducts the Knowledge Training for Fire Prevention in Winter

2018年10月25日，为进一步强化企业员工消防安全教育，提高抗击突发事件的应变能力，在各级领导和员工的大力支持下，青海明阳组织举办了以“强化意识、防患未然”为主题的冬季消防知识培训及消防演练活动，旨在迅速有效组织消防安全疏散，掌握正确使用灭火器及逃生的方法。通过这次培训演练，强化了广大员工“预防为主、安全第一”的意识，提高了广大员工的自我救护和科学逃生能力，培养了员工在紧急遇险时互帮互助、并肩作战的精神。

On October 25, 2018, with the strong support of leading officials and employees at all levels, in order to further strengthen the fire safety education of enterprise employees and improve their abilities to cope with emergencies, Qinghai Ming Yang organized and held winter fire prevention knowledge training and fire drills with the theme of "Strengthening Consciousness and Preventing Accidents" so as to quickly and effectively organize fire safety evacuation and master the correct use of fire extinguishers and means of escape. Through this training and drill, the employees' awareness of "prevention and safety first" has been strengthened, their abilities of self-rescue and scientific escape has been improved, and their spirit of helping each other and fighting side by side in case of emergency has been cultivated.

担当供应链责任

Responsibilities for Supply Chain

明阳智能遵循公平、公开、公正的原则，对供应商的确定、评价过程实施控制，制定《供应商准入作业指引》《采购控制程序》《供方管理程序》《主要部件准入流程明细表》等，并确定供应链管理的流程，明确各部门供应商采购的职责，不断发展和培育供应商，优化供应商结构，建立长期互惠合作的供求关系，从而进一步实现满足客户要求、开发新产品、降低采购成本、推进产品国产化以及保证产品质量的目标。

In accordance with the principles of openness, equity and fairness, the Ming Yang Smart Energy carries out control on process of determination and evaluation of suppliers, formulates the Guidelines for Operation of Admission of Supplier, the Procurement Control Procedure, the Supplier Management Procedure, the Detailed List of Admission Procedure of Main Parts and others, determines the process of supply chain management, defines the purchasing responsibilities of suppliers in various departments, continuously develops and cultivates suppliers, optimizes the structure of suppliers and establishes long-term mutually beneficial cooperation between supply and demand so as to further realize the goals of meeting customer requirements, developing new products, reducing purchasing costs, promoting localization of products and ensuring product quality.

战略采购分部负责收集开发需求并组织开发供应商

The Strategic Purchasing Branch is responsible for collecting development requirements and organizing development suppliers

质量部门负责供应商现场的质量评审

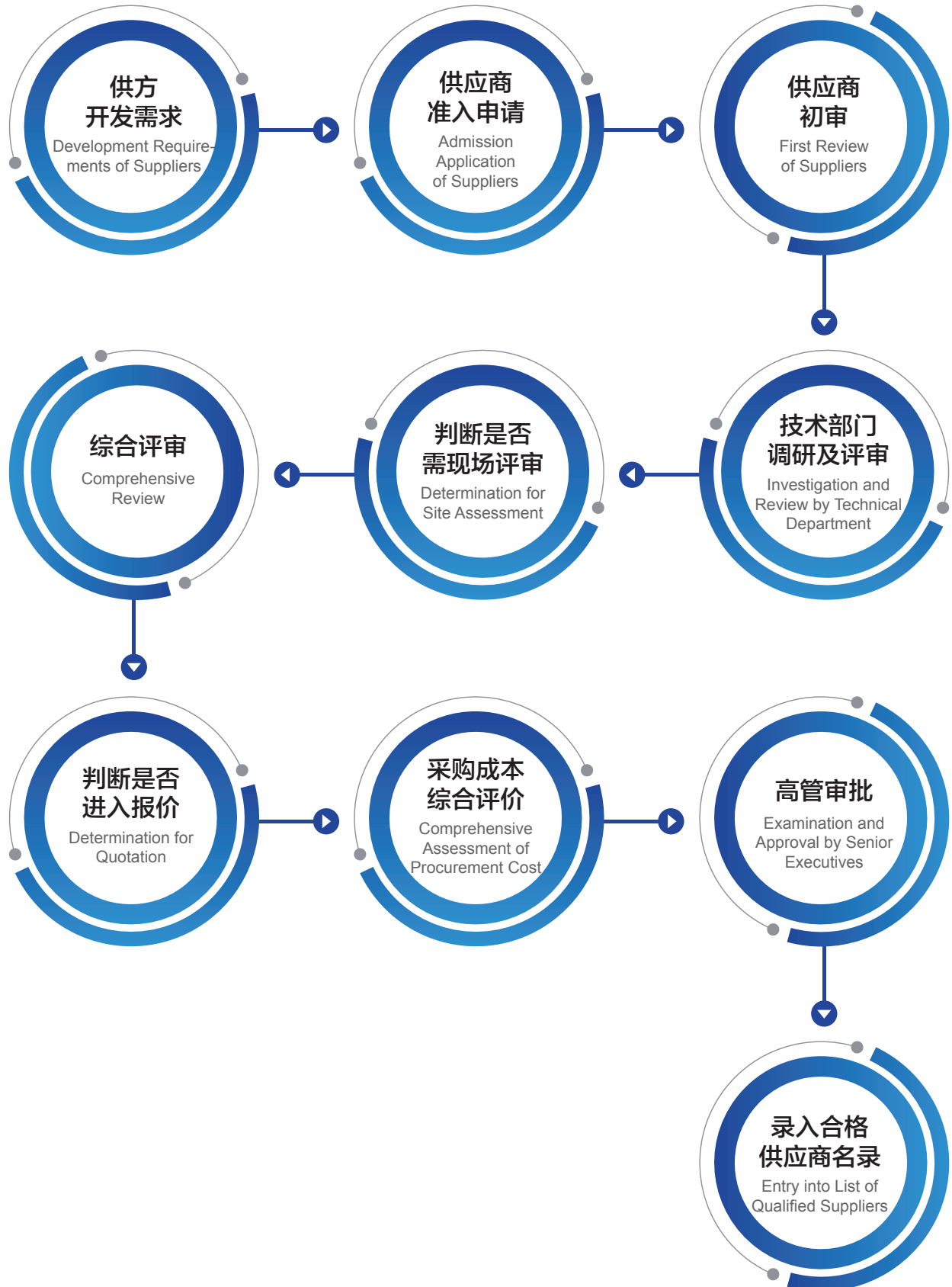
The Quality Department is responsible for the on-site quality review of suppliers

技术部门负责供应商现场的技术评审

The Technical Department is responsible for the technical review on the suppliers' sites



供应商准入流程
Procedures for Admission of Suppliers



能动 · 创新研发

Dynamic · Innovative R&D



技术研发体系

Technology R&D System

研发团队

R&D Team

随着国家政策对可再生能源发展的大力扶持，风力发电机组的装机容量也呈现平稳增长的态势，明阳智能注重对高素质的研发人才的引进和培养。通过实战凝聚、锻炼、考验了一大批系统掌握风电理论并具有丰富实践经验的复合型人才。公司研发技术人员 837 人，其中博士 13 人，硕士 199 人，本科 317 人；团队拥有首席工程师 15 名，副首席工程师 24 人，主任工程师 63 人。

同时，公司整合全球资源，拥有国内领先的叶片设计团队、齿轮箱设计团队、发电机设计团队、核心研发仿真团队、整机研发测试团队、液压润滑冷却系统设计团队、智慧能源研发团队、智能化运维团队。公司建立了国家级企业技术中心、国家地方联合工程实验室、广东省风电技术工程实验室、广东省工程中心和博士后科研工作站，并在美国硅谷、德国汉堡，以及北京、上海、深圳建立高端前沿研发中心。

With the strong support of the national policy for the development of renewable energy, the installed capacity of wind turbines is also growing steadily. Mingyang Smart Energy pays attention to the introduction and training of high-quality R&D talents, and gathers, trains and tests a large number of versatile talents who have mastered wind power theory systematically and have rich practical experience through actual combats. The Company has 837 R&D technicians, including 13 doctors, 199 masters and 317 undergraduates. The team has 15 chief engineers, 24 deputy chief engineers and 63 principal engineers.

At the same time, the Company integrates global resources and engages the leading domestic blade design team, gearbox design team, generator design team, core R&D simulation team, complete machine R&D test team, hydraulic lubrication and cooling system design team, intelligent energy R&D team and intelligent operation and maintenance team. The Company has established national enterprise technology center, national and local joint engineering laboratory, Guangdong wind power technology engineering laboratory, Guangdong engineering center and post-doctoral scientific research workstation, and also the high-end frontier R&D centers in Beijing, Shanghai, Shenzhen, Silicon Valley in the United States, and Hamburg in Germany.

研发投入

R&D Investment

近年来，明阳智能一直保持着高比重的研发投入，不断巩固业务的护城河的同时，也拓宽了业绩盈利点和增长点。2018年，公司研发投入25,175.92万元（含资本化研发支出），占营业收入的比例为3.65%，研发投入水平超过行业平均水平。

In recent years, Mingyang Smart Energy has maintained a high proportion of R&D investment, constantly consolidating the moat of its business, while broadening the profit and growth points of its performance. In 2018, the Company invested RMB 251.75 million in R&D (including capitalized R&D expenditures), accounting for 3.65% in operating revenue, and its R&D investment exceeds the industry average.

2018 年研发投入 **25,175.92** 万元

RMB 251.75 million in R&D

占营业收入的比例为 **3.65%**

Accounting for 3.65% in operating revenue

研发成果

R&D Results

在十年间，明阳智能积淀了创新机制和创新能力，形成了650项专利及软件著作权，从行业“追随者”跃升为“引领者”。根据美国咨询公司 Totaro & Associates 发布的《全球海上风电创新趋势报告》，明阳智能在全球海上风电技术创新排名第一。

Over the past ten years, Mingyang Smart Energy has accumulated innovative mechanisms and innovative abilities, and formed 650 patents and software copyrights, jumping from "follower" to "leader" in this industry. According to the Global Offshore Wind Power Innovation Trend Report released by Totaro & Associates, an American consulting firm, Mingyang Smart Energy ranks the first in the global offshore wind power technology innovation.

核心技术储备

Core Technology Reserve

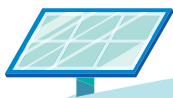
风电行业属于技术密集型行业，明阳智能大型风力发电机组的设计、制造、安装等环节都具备较高的技术含量，涉及多个学科领域的知识，具体包括流体力学、电机学、计算机控制检测技术和海洋工程等。同时，风力发电机组的使用寿命一般为 20 年，需要经受长期温差、风沙、雨水等各种复杂严酷环境的考验。公司以深厚的基础技术积累、精密的技术开发应用和严谨的产品质量管理，保证了风力发电机组运行的技术创新性、可靠性和稳定性。

Wind power industry is a technology-intensive industry. Mingyang Smart Energy has high technical contents in design, manufacture and installation of its large-scale wind turbines, involving knowledge in such disciplinary areas as fluid mechanics, electromechanics, computer control and detection technology and oceanographic engineering, etc. At the same time, the service life of the wind turbines is generally 20 years, which needs to be tested by such various complicated and harsh environments as long-term temperature difference, sandstorm, rainwater, etc. The Company guarantees the technical innovation, reliability and stability of the operation of the wind turbines by virtue of its deep foundation technology accumulation, sophisticated technology development and application and strict product quality management.



领先的技术优势和丰厚的技术储备 Leading Technical Advantages and Rich Technical Reserves

- 创新的超级紧凑半直驱技术路线设计
Innovative and ultra-compact route design with semi-direct drive technology
- 超低风速技术
Ultra-low wind speed technology
- 抗台风技术
Anti-typhoon technology
- 叶片制造技术
Blade manufacturing technology
- 海上风电技术
Offshore wind power technology
- 分段式叶片设计技术
Sectional blade design technology
- 深海漂浮式风电技术
Deep-sea floating wind power technology



超级紧凑半直驱技术

Ultra-compact Semi-direct Drive Technology

以明阳智能自主研发的半直驱技术为核心科技的 3.0MW 系列风力发电机组为国内首创、全球领先的战略性拳头产品，具有“单机容量最大”、“抗台风”、“防腐”、“超紧凑的传动链”、“轻量化结构”、“工程吊装便捷”、“基于模型的智能控制”等关键技术优势。

效率优势：公司的 3.0MW 系列风力发电机组采用半直驱（永磁混合驱动）的技术路线，结合直驱与双馈两种技术路线的优点，传动链由两级传动齿轮箱和中速永磁发电机构成。通过两级传动齿轮箱适当提高永磁发电机转速，可以使用比传统直驱风机体积更小、重量更轻的永磁发电机；与传统双馈风机使用的多级高传动比齿轮箱相比，转速比更低，可靠性更强。

成本优势：采用超紧凑传动链技术的风力发电机组，载荷受力传递路径较短，有效减轻齿轮箱、发电机经受的载荷，大幅提升机组运行的可靠性，有效降低综合度电成本。

The Series 3.0MW wind turbines, with the semi-direct drive technology independently developed by Mingyang Smart Energy as its core technology, are the China's first and world's leading strategic hit products, involving such key technological advantages as "maximum single-machine capacity", "typhoon resistance", "corrosion prevention", "ultra-compact transmission chain", "lightweight structure", "convenient engineering hoisting" and "model-based intelligent control".

Efficiency advantage: the Company's Series 3.0MW wind turbines adopt semi-direct-drive (permanent magnet hybrid drive) technical route which combines the advantages of direct drive and double-fed technology. The transmission chain consists of two-stage transmission gearbox and medium-speed permanent magnet generator. The revolving speed of permanent magnet generator can be properly increased via the two-stage transmission gearbox to use the permanent magnet generator with smaller and lighter than the traditional direct-drive wind turbines. Compared with the multi-stage gear box with high transmission ratio used by the traditional double-fed wind turbines, the speed ratio of permanent magnet generator is lower and more reliable.

Cost advantage: the permanent magnet generator adopts ultra-compact transmission chain technology which has a short load force transmission path, thereby effectively reducing the load sustained by the gear box and generator, greatly improving the operation reliability of the generator set, and effectively reducing the comprehensive power cost.





三峡海上风电兴化湾试验风场中各家主机厂商产品发电量对比情况

Comparison of Power Generation of Products offered by Main Engine Manufacturers in Xinghua Bay Test Wind Farm of Three Gorges Offshore Wind Power

- 三峡海上风电兴化湾试验风场，国内外 8 家风机厂商，每家 2 台共 16 台机组，在同一海域、同一时间段试验比较风机性能，试验结果显示明阳智能风机性能最为优秀。

In the Xinghua Bay test wind field of Three Gorges Offshore Wind Power, 16 wind turbines from 8 domestic and foreign wind turbine manufacturers (each with 2 units), are tested and compared for their performances in the same sea area and at the same time period. The test result shows that Mingyang Smart Energy's wind turbines have the best performance.

- 等效满发小时最高，单机功率排名第四，发电量却名列第二，收益率高出对手约 7-10 个百分点。

Mingyang Smart Energy's wind turbines have the highest time of equivalent full-power generation, the fourth single-unit capacity but the second power generation, with a yield of about 7-10 percentage points higher than that of its opponents.

- 叶片直径最长，扫风面积最大，“玛利亚”台风期间，全场唯一实现零电量损失、保持持续满发机组。

The Company's wind turbines have the longest blade diameter and the largest swept area. During the "Typhoon Maria", they were the only units that realized zero power loss and maintained continuous full power generation in this field.

项目名称 (单位) Project name (unit)	明阳 Mingyang	GE GE	上气 (西门子) Shanghai Electric (Siemens)	金风 Jinfeng	海装 CSIC	太原重工 Taiyuan Heavy Industry	东气 Dongfang Electric	湘电 XEMC
机型 Type	MY5.5 -155/100	GE6.0 -150/100	SWT6.0 -154/100	GW6.7 -150/100	H5.0 -128/100	TZ5.0 -153/100	FD5.0 -140/100	XD5.0 -128/100
单位扫风面积 (m ² /KW) Unit swept area (m ² /KW)	3,563	2,943	3,103	2,636	2,572	3,675	3,077	2,572
等效满发 小时数 (h) Equivalent full- power generation hours(h)	3,460	3,095	3,171	2,930	2,773	3,454	3,175	2,975
年发电量 (MWh) Annual energy output (MWh)	19,030	18,570	19,026	19,631	13,865	17,270	15,875	14,875

太阳能技术

Solar Energy Technology

明阳智能引进美国硅谷一流创业团队和世界领先科技，推动薄膜太阳能最新一代技术的全面发展。以新一代纳米碲化镉薄膜技术为核心制造的碲化镉 (CdTe) 组件，广泛应用光伏地面电站、分布式电站等领域。

Mingyang Smart Energy has introduced the first-class entrepreneur team from Silicon Valley and the world's leading technology to promote the all-round development of the latest generation of thin-film solar technology. Taking the new generation of nanometer cadmium telluride thin-film technology as its core, Cadmium telluride (CdTe) components are widely used in such fields as photovoltaic above-ground power stations, distributed power stations, etc.





碲化镉 (CdTe) 组件的优势 Advantages of CdTe Components

更出色的温度系数

Better temperature coefficient

碲化镉太阳能电池温度系数远低于传统晶硅太阳能电池。炎热的高温地区，发电量会更加具有优势。

The temperature coefficient of CdTe solar cells is far below that of traditional crystalline silicon solar cells. In hot areas, CdTe solar cells will have more advantages in power

更低的衰减率

Lower attenuation rate

碲化镉 (CdTe) 太阳能电池 25 年累计衰减率不超过 14%，远低于传统晶硅太阳能电池。

CdTe solar cells have a cumulative attenuation rate of less than 14% over 25 years, which is much lower than that of traditional crystalline silicon solar cells.

更优异的弱光效应

Superior weak light effect

碲化镉 (CdTe) 太阳能电池是直接间隙材料，光谱响应范围宽，吸收系数高，具有较高的弱光敏感度，所以在清晨、傍晚、阴天以及空气洁净度较差（雾霾）的地区发电量更具优势。

CdTe solar cells are made of materials with direct gaps, which have wide spectral response range, high absorption coefficient and high weak sensitivity. Therefore, their power generation is more advantageous in early morning, evening, cloudy day and areas with poor air cleanliness (haze).

潮湿条件下更强的光谱响应能力

Stronger spectral response under humid conditions

传统光伏技术对不同的光线波长的响应也会有所变化，在潮湿的季节里，大气中的水分会降低可用光线的特定波长。碲化镉 (CdTe) 太阳能电池对它的降低不太敏感，因此在潮湿条件下，碲化镉 (CdTe) 组件的年发电量增加高达 6%。

The traditional photovoltaic technology will also have different responses towards different wavelengths of light. In humid seasons, moisture in the atmosphere will reduce the specific wavelength of available light. CdTe solar cells are not very sensitive to the reduced wavelengths of light, so the annual power output of CdTe components increases up to 6% under humid conditions.

创新研发能力

Innovative R&D Abilities

核心关键部件自主生产配套能力

Independent Production and Matching Abilities of Core Key Components

风机零部件质量决定风力发电机组质量。明阳智能具备叶片、齿轮箱、发电机、电力电子变流器等各关键部件的自主设计、制造能力，明阳风电为国内仅有的具备完全自主条件进行一体化建模与模型验证研究的风电设备制造商。同时，公司形成了包括叶片、变频器、变桨控制系统、电气控制系统等核心零部件的研发、设计和制造能力，具备较强的自主配套能力。

The quality of wind turbines depends on the quality of its components. Mingyang Smart Energy is able to independently design and manufacture such key components as blades, gear boxes, generators, power electronic converters, etc. Mingyang Wind Power is the only wind power equipment manufacturer in China that has the completely independent conditions to conduct integrated modeling and model verification research. At the same time, the Company is able to develop, design and manufacture such core components as blades, frequency converters, variable-pitch control systems, electrical control systems, etc., and has strong self-matching abilities.

对于 3.0 兆瓦以上风机产品，除了自产叶片、变频器、变桨控制系统、电气控制系统以外，公司将自主生产发电机、齿轮箱、电控系统等部件。公司掌握风力发电机组核心部件的研发、设计和制造能力，不仅可以有效控制成本，提升盈利能力，还可以从整机系统角度对风机部件进行优化设计，提高风机运行效率及可靠性，从而更好满足客户的多层次需要，保持企业的产品核心竞争力。

For wind turbine products above 3.0MW, in addition to self-produced blades, frequency converters, variable-pitch control systems and electrical control systems, the Company will independently produce such components as generators, gear boxes, electrical control systems. The Company masters the R&D, design and manufacturing of the core components of the wind turbines, which not only can effectively control the cost and improve the profitability, but also can optimize the design of the wind turbine components from the perspective of the complete machine system and improve the operation efficiency and reliability of the wind turbines, thus better meeting the multi-level needs of customers and maintaining the core competitiveness of the enterprise's products.



2018 年公司主要研发项目

Main R&D Projects of the Company in 2018

- MySE7.0-155 机组开发项目
MySE7.0-155 Units Development Project
- 碳玻混编叶片开发
Development of Carbon-Glass Blended Blades
- MySE3. XPlus-145 机组开发项目
MySE3. XPlus-145 Units Development Project
- 风机储能发电系统项目
Wind Turbines Energy Storage and Power Generation System Project

- MySE7.0-155 风力发电机机组发电机开发
MySE7.0-155 Wind Turbines Development
- MySE7.0 齿轮箱样机研发
R&D of MySE7.0 Gearbox Prototypes
- 明阳智能工业园智慧能源系统示范项目
Demonstration project of Smart Energy System in Mingyang Smart Industrial Park
- 数字化风电场规划平台开发
Development of Digital Wind Farm Planning Platform
- MySE3.0MW 发电机自制
Self-produce MySE3.0MW Generator
- MySE3.0MW 机组柔性塔架开发
Development of Flexible Tower for MySE3.0MW Units
- 海上漂浮式风机及基础设计预研
Preliminary Study on Offshore Floating Wind Turbines and Foundation Design

产学研合作

Industry-University-Research Cooperation

明阳智能参与国际国内行业标准制定 89 项，其中国际标准 3 项，国家标准 30 项，行业标准 56 项，地方标准和团体标准各 1 项。公司与国内外知名机构 ECN(荷兰的国家级能源实验室)、DNVGL(德国劳埃德船级社)、Fraunhofer(德国弗劳恩霍夫研究院)、Romax(世界顶级传动链设计商) 等国际知名机构的科研合作，在气动弹性力学研究、齿轮箱设计、传动链系统设计、复杂地形风资源测算、先进控制策略开发等风电前沿技术领域突破发展。

Mingyang Smart Energy participated in formulation of 89 international and domestic industry standards, including 3 international standards, 30 national standards, 56 industry standards, 1 local standard and 1 group standard. The Company cooperated with such world-famous institutions as ECN (Holland's national energy laboratory), DNVGL (Lloyd's Register of Shipping in Germany), Fraunhofer (Fraunhofer-Gesellschaft in Germany), and Romax (world's top transmission chain designer) to jointly develop their scientific researches and achieved breakthroughs and developments in aeroelasticity research, gearbox design, transmission chain system design, estimation of wind resources in complex terrain, advanced control strategy development and other frontier wind power technologies.



能动 · 环境责任

Dynamic · Environmental Responsibility



绿色管理

Green Management

作为全球清洁能源的推行者，明阳智能通过构建并完善环保管理制度、环境因素识别、环境影响评价以及环保培训多层次进行绿色管理，号召公司员工将节能环保理念融入工作和生活，降低公司整体运营能耗，最大限度地节约能源，减少污染。

特别是保持气候稳定方面，明阳智能发挥自身行业优势，持续节能减排，实现绿色低碳发展。化石能源消耗产生的温室气体排放是导致气候变化的主要原因，在全球温室气体排放量中约占 60%。风机在发电过程中基本无污染物排放，相较于传统火电，可大幅降低温室气体的排放量。作为专注于风机研发和制造的企业，公司不断积极推广风电技术和产品，推动生产更多绿色电力，减缓和应对气候变化。公司利用自身积累的绿色经验，完成了 10 亿元绿色中期票据的注册，5 亿元绿色中期票据的发行，是广东省首单获得注册的绿色中期票据的企业。

As an impeller for the global clean energy, Mingyang Smart Energy conducts green management from many aspects, such as the construction and improvement of environmental protection management system, the environmental factor identification, the environmental influence evaluation and the environmental protection training. It calls on the company's employees to integrate the concept of energy conservation and environmental protection into their work and life, so as to reduce the overall operation energy consumption of the company, maximize the energy saving and reduce pollution.

Especially in terms of maintaining climate stability, Mingyang takes full advantage of its own industry advantage, sustains energy saving and emission reduction, and achieves green and low-carbon development. Greenhouse gas emissions from fossil energy consumption are the main causes of climate change, accounting for about 60% of global greenhouse gas emissions. Wind power has no pollutant emission in the process of power generation. Compared with traditional thermal power, it can greatly reduce greenhouse gas emissions. As an enterprise focusing on wind turbine R&D and manufacturing, the company continuously actively promotes wind power technology and products, promotes the production of more green power, mitigates and copes with climate change. With its accumulated green experience, the Company completed the registration of RMB 1 billion of green medium term notes (MTNs) and the issuance of RMB 500 million of MTNs. It is the first enterprise to register green MTNs in Guangdong.



环境管理制度建设 Construction of Environmental Management System

- 环境因素识别评价与更新程序
Evaluation and updating procedure of environmental factors
- 废弃物控制程序
Waste control procedure
- 防治污染控制程序
Pollution prevention and treatment control procedure
- 能源资源节约控制程序
Energy and resource saving control procedure
- 危险源辨识、风险评价和风险控制程序
Dangerous source identification, risk evaluation and risk control procedure
- OHS 运行控制程序
OHS operating control procedure

环境因素识别

Environmental Factor Identification

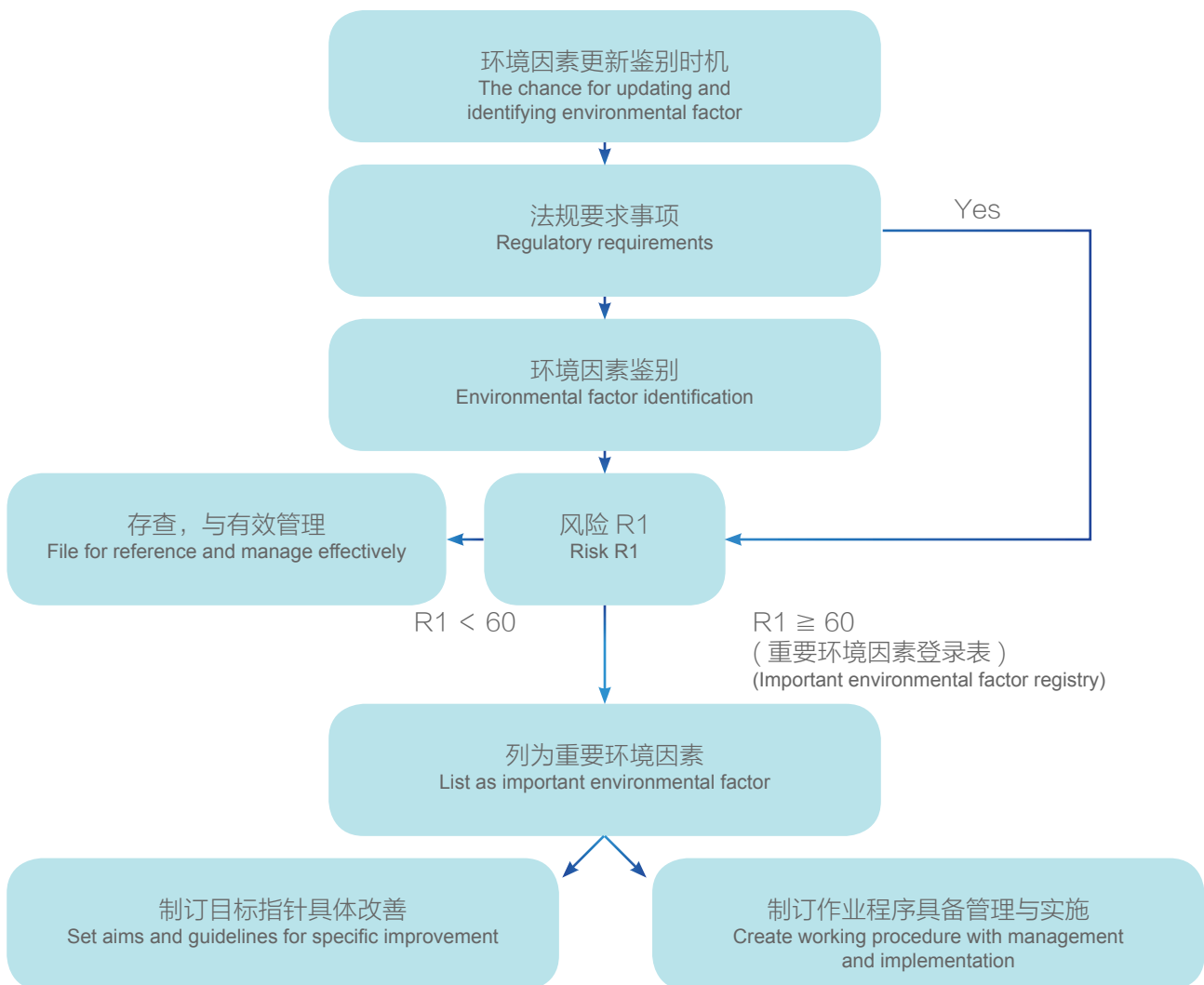
为鉴别可以控制及预期可能影响活动、产品、服务的环境因素，用以判断过去、现在、未来会对环境造成重大冲击的因素，明阳智能对本公司生产活动与产品服务中会造成相关环境冲击者进行环境因素识别，这是实施 ISO14001 环境管理体系标准的核心任务，也是建立和实施环境管理体系的基础和关键。

In order to identify the environmental factors that can be controlled and expected to affect activities, products and services to judge the factors that will cause major impacts on the environment in the past, present and future, Mingyang Smart Energy will identify the environmental factors that will cause relevant environmental impacts in the company's production activities and product services. This is the core task of implementing ISO14001 environmental management system standard, and it is also the foundation and key of establishing and implementing environmental management system.



环境因素识别流程图

Environmental Factor Identification Flow Diagram



环境影响评价

Evaluation on Environmental Influence

明阳智能根据《中华人民共和国环境影响评价法》中有关规定、国务院第 253 号令《建设项目环境保护管理条例》和地方相关规定，委托第三方机构进行技术人员踏勘现场、收集资料和编制监测计划，对公司和各基地开展环境影响评价工作。

In accordance with the relevant provisions in "The Environmental Influence Evaluation Law of People's Republic of China", the State Council Decree No.253 "Regulations on Environmental Protection and Management of Construction Projects" and the relevant local regulations, Mingyang Smart Energy entrusts a third-party organization to carry out site visits data collection and monitoring plans prepare by technicians, so as to carry out environmental influence evaluation on the company and each base.

环评项目事例

Example of Environmental Evaluation Project

锡林郭勒盟明阳新能源有限公司年产 600MW 风机 200MWp 光伏组件制造项目环境影响评价

Environmental influence evaluation on the manufacturing project of annually production of 200MWp photovoltaic module for 600MW fan by Xilin Guole League Mingyang New Energy Co., Ltd.

锡林郭勒盟明阳新能源有限公司年产 600MW 风机 200MWp 光伏组件制造项目符合国家、地方产业政策，厂址选择合理，符合国家和当地总体规划的要求。项目工艺先进，按本环评提出各项环保措施和风险防范措施，各污染物能稳定达标排放，符合总量控制指标。项目做到了经济效益、社会效益和环境效益的统一。

The manufacturing project of annually production of 200MWp photovoltaic module for 600MW fan by Xilin Guole League Mingyang New Energy Co., Ltd. conforms to the national and local industrial policies, and the site selection is reasonable that meets the requirements of the national and local overall planning. The process of the project is advanced, proposing various environmental protection measures and risk prevention measures according to this environmental influence evaluation. All pollutants can be discharged stably up to the standard and can also meet the total amount control indicator. The project has realized the unification of economic benefits, social benefits and environmental benefits.

天津津能明阳风电技术有限公司风电设备制造基地一期项目环境影响评价

Environmental influence evaluation on wind power equipment manufacturing base phase I project of Tianjin Jin Energy Mingyang Wind Power Technology Co., Ltd.

天津津能明阳风电技术有限公司风电设备制造基地一期项目的建设符合国家产业政策和天津滨海高新技术产业开发区总体规划的要求，促进经济、社会和环境的协调发展。

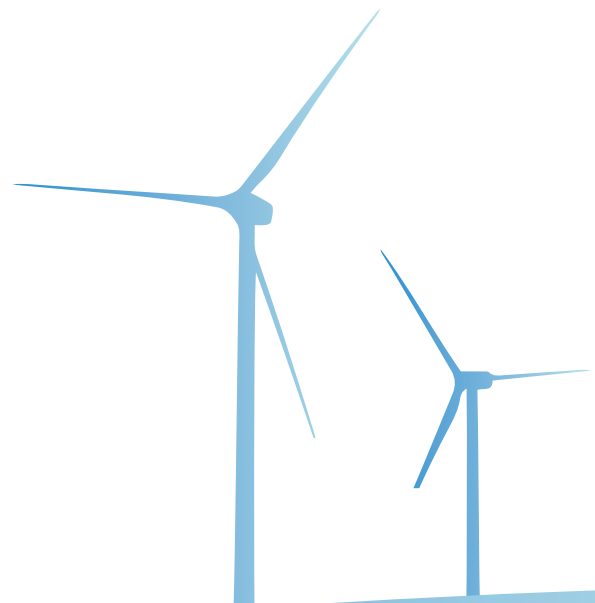
The construction of the phase I wind power equipment manufacturing base of Tianjin Jin Energy Mingyang Wind Power Technology Co., Ltd. conforms to the requirements of the national industrial policy and the overall planning of Tianjin Binhai high-tech industrial development zone, which can promote the coordinated development of economy, society and environment.

阳江高新区明阳风机装备制造叶片项目

Mingyang fan equipment manufacturing blade project in Yangjiang high-tech zone

阳江高新区明阳风机装备制造叶片项目位于阳江市高新区港口工业园锦绣路南边，建设内容符合国家、广东省的产业政策要求，符合国家、广东省相关环保和行业规划，符合阳江市、高新区总体规划。本项目设计采用了成熟的污染控制技术，产生的污染物经有效处理后能够达标排放。

Located in the south of Jinxiu Road, Port Industrial Park, the construction content of Mingyang fan equipment manufacturing blade project in Yangjiang high-tech zone conforms to the industrial policy requirements of the state and Guangdong Province, the relevant environmental protection and industry planning of the state and Guangdong Province, and the overall planning of Yangjiang City and high-tech zone. This project design adopts mature pollution control technology, which can produce pollutants that reach the standard and can be discharged after being effectively treated.



绿色生产

Green Production

废弃物管理

Waste Management

为了保持生态平衡，减少废弃物对周围生态环境的污染，为符合国家法律法规，环保要求，明阳智能对所排放、废弃的各种废弃物进行有效控制。

In order to maintain the ecological balance and reduce the pollution of waste to the surrounding ecological environment, and to comply with the national laws and regulations and environmental protection requirements, Mingyang Smart Energy controls various wastes discharged and abandoned effectively.



废弃物的分类收集

The Collection of Waste According to the Classification

各部门根据分类在本部门现场放置废弃物收集点，并作好明确标识；并根据废弃物的种类、数量，配置三种颜色的收集桶（绿色标识：可回收废弃物；黄色标识：一般废弃物；红色标识：危险废弃物）；行政部负责确定最后废弃物的全公司集中存放位置，作好明确标识。

Each department shall place waste collection points with clear marks on its own site according to classification. Equip collection barrels with three colors (green sign: recyclable waste; Yellow sign: common waste; Red sign: hazardous waste) according to the type and quantity of waste. The administrative department is responsible for determining the centralized storage location of the final waste with clear marks in the company.

公司全体员工应按分类，将废弃物分别放置在规定的收集容器内；各部门根据废弃物的种类、性质，规定相应的收集桶和存放位置，并负责收集、搬运集中至指定地点；在废弃物搬运过程中要防止废弃物的散落、污水滴漏，如有散落滴漏等现象，应即时处理干净。

All employees of the company shall place the waste in specified collection containers according to the classification. Each department shall specify the corresponding collection barrel and storage location according to the type and nature of waste, and shall be responsible for collecting and transporting the waste to the designated place. Prevent the waste scattering and sewage dripping in the process of waste transporting. If any such scattering and dripping is found, clear it immediately.

危险废弃物堆场同样分为三大类标识，各废弃物产生部门按规定将已分好类的废弃物清运至指定地点，分类投放，由生产部负责管理。

The hazardous waste storage yard is also marked into three categories. Each waste producing department shall remove and transport the classified waste to the designated place according to regulations, and put them into different categories, which shall be managed by the production department.



废弃物的处理 The Treatment on the Waste

各废弃物产生部门（生产部、仓库等）将本部门各岗位设置废物存放区，分三类标识，投放时分类正确投放，并定时清运至堆场。

Each waste producing department (production department, warehouse, etc.) shall set waste storage areas at each post, which shall mark into three types. The waste shall be put into the storage area according to its correct classification and be transported to the storage yard regularly.

堆场负责人将各部门移交的已分类好的废弃物按要求投放到堆场的三大类投放区中，保证投放准确无误。

The person in charge of the storage yard will throw classified waste handed over by each department into the storage areas with three types in the storage yard as required, ensure the throwing is accurate.



废弃物排放 · 2018 Waste Emission · 2018

所产生的有害废弃物总量
The total amount of hazardous waste generated

35.52 吨

35.52 ton

所产生的无害废弃物总量
The total amount of harmless waste generated

1,065.5 吨

1,065.5 ton

防治污染

Prevention and Treatment of Pollution

明阳智能依据相关法律法规制定预防水体、大气、噪音污染的规定，采用原材料利用效率高、污染物排放量少的清洁生产工艺，并加强管理，减少水污染物以及大气污染物的产生，保护公司及所在区域的环境。

In accordance with relevant laws and regulations, Mingyang Smart Energy formulates regulations on water, air and noise pollution prevention, adopts clean production process with high utilization efficiency of raw materials and low pollutant emission, and strengthens management to reduce the generation of water pollutants and air pollutants that can protect the environment of the company and its region.



各部门职责响应

Responsibility that Each Department Should Response

安环部负责对公司管辖内的水体、大气、噪音进行管理

The safety and environment department is responsible for the management of water, air and noise within the jurisdiction of the company.

相关责任部门负责对各部门使用的相关设备进行维护

Relevant responsible departments are responsible for the maintenance of relevant equipment used by each departments.

公司负责委托当地环保部门或具有监测资质部门进行监测，安环部负责收集并保存相关监测记录

The company is responsible for entrusting local environmental protection departments or departments with monitoring qualifications to carry out monitoring, and the safety and environment department is responsible for collecting and keeping relevant monitoring records.



污染物排放 · 2018

Pollutant Emission · 2018

挥发性有机物 (VOCs) 排放量
Emission amount of volatile organic compounds (VOCs)

7.86 千克

7.86 kilogram

(废水中) 化学需氧量 (COD) 排放量
Emission amount of chemical oxygen demand (COD)

3.44 吨

3.44 ton

(废水中) 氨氮 (NH₃-N) 排放量
Emission amount of ammonia (NH₃-N)(in wastewater)

15.2 千克

15.2 kilogram

生活废水排放量
Emission amount of sanitary wastewater

89,786 立方米

89,786 cubic meters

绿色办公

Green Working

明阳智能严格遵守环境相关法律法规，始终将绿色环保理念贯穿于公司经营的全过程，2018年，公司未发生任何环境方面的违规事件。

Mingyang Smart Energy obeys the relevant environmental laws and regulations strictly and has always put the concept of green environmental protection throughout the whole process of the company's operation. In 2018, the company hasn't had any environmental violations.

为响应环保理念中关于节约纸张和低碳环保的行动倡议，明阳智能提倡全公司员工亲身实践绿色环保行动，积极助力环保公益事业，为生态环保建设贡献出自己的绵薄之力。公司利用互联网进行无纸化办公，减少纸质文件、印刷、笔墨、曲形针、大头针等使用量，实现绿色环保。

In response to the environmental protection concept about saving paper and low carbon environmental protection, Mingyang Smart Energy advocates the whole company staff to practice green environmental protection actions personally, to assist in environmental protection and public welfare undertakings actively, and to contribute their widow's mite to the construction of ecological environment protection. The company reduces the use of paper documents, printing, pen and ink, curvy needles, pins, etc. by using the Internet superseding paperless office, so that it can realize environmental protection.

公司对办公区域巡检，及时关闭无人区域空调和照明设备；对冬夏季空调控制开启温度；夜公共区域常用光源更换为节能灯；对不常用电器及电源进行断电处理，避免产生不必要能耗。

The company patrols and inspects the office area so as to turn off the air conditioning and lighting equipment in unmanned areas in time; Controlling the opening temperature of air conditioning in winter and summer; The common light sources in night public areas are replaced by energy-saving lamps; Power-off treatment shall be carried out for seldom using electrical appliances and power supplies to avoid unnecessary energy consumption.



明阳智能采用市政用水作为主要来源，鼓励员工节约用水，优先采购节水器具，发现跑冒滴漏后及时维修，节约每一滴水。

Mingyang Smart Energy uses municipal water as its main source, encourages employees to save water, gives priority to the procurement of water-saving appliances, and makes timely maintenance after finding leakages so as to save every drop of water.



公司倡导低碳出行，鼓励员工上下班乘坐公共交通工具，提供免费通勤班车每日往返不同厂区，减少废气排放。

The company advocates low carbon travel, encourages employees to take public transportation to and from work, and provides free commuter buses to and from different factories every day so as to reduce exhaust emissions.



明阳智能持续不断提高工业园区绿化水平，营造了清新美好的绿色办公环境。

Mingyang Smart Energy can improve the greening level of the industrial park continuously which creates a fresh and beautiful green work environment.





能动 · 员工责任

Dynamic · Employees Responsibility

员工权益

Employee Rights and Interests

明阳智能严格遵守《劳动法》《劳动合同法》等法律法规，切实保障员工的合法权益，并遵循“平等自愿、协商一致”的原则与员工签订劳动合同，劳动合同签订率达 100%。

在人数方面，截止 2018 年底，明阳智能员工总数为 5,475 人；在年龄层次方面，40 岁以下员工占比高达 90%，越来越多的年轻人才成为中坚力量；在专业类型方面，技术人员占比为 16%，科研创新在公司内部蔚然成风；在学历层次方面，具有硕士学历员工 345 名，博士学历员工 27 名，整体人才学历水平稳步提高。

Mingyang Smart Energy strictly abides by the "Labor Law", "Labor Contract Law", effectively protects the legitimate rights and interests of employees, and signs labor contracts with employees according to the principle of "equality, voluntariness and consensus through consultation". The signing rate of labor contracts reaches 100%

In terms of number, by the end of 2018, the total number of Mingyang Smart Energy was 5,475. In terms of age, the proportion of employees under 40 is as high as 90%, and more and more young talents become the nucleus of the company. In terms of majors, technicians account for 16%, and scientific research and innovation have become common practice within the company. In terms of educational background, 345 employees have master's degree and 27 employees have doctor's degree. The overall educational level of talents has steadily improved.

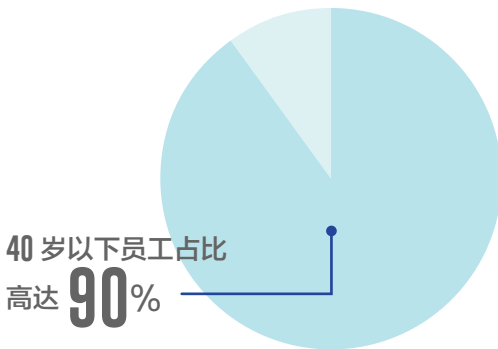


公司不断优化员工结构

The company continues to optimize its staff structure

人才年轻化

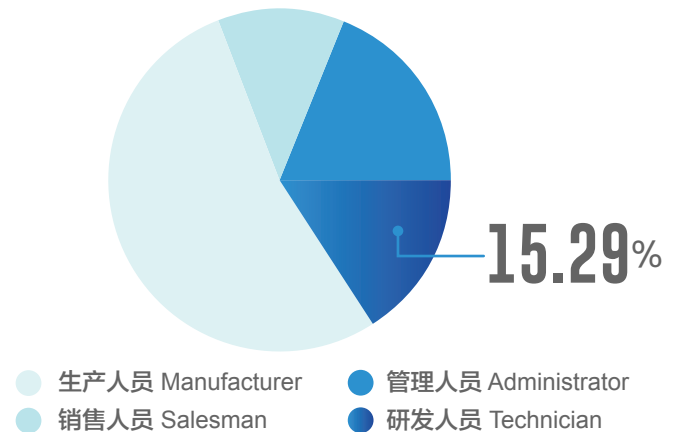
Younger Talents



本集团员工人数共 **5,475** 人；

科研创新蔚然成风

Popular Scientific Innovation



重视高学历人才

Paying More Attention to Highly Educated Talents



硕士
Master

345 人



博士
Doctor

27 人



人才理念 The Concept of Talents

人尽其用，用尽其能

People Make Full Use of Their Capabilities



人才战略 The Strategy of Talents

双百培育、重用领军、鼓励创业

Double-Hundred Cultivation, Reuse of Leaders and Encouragement of Entrepreneurship

明阳智能一直牢固树立“以人为本”的科学发展观，积极完善政府、工会和企业共同参与的协商协调机制，构建和谐劳动关系。一直以来，公司以高标准和高投入为员工提供安全、舒适的工作和生活环境，注重人才和能力提升和人文关怀；注重集体协商与争议预防调解。致力于构建规范有序、公正合理、互利共赢、和谐稳定的劳动关系；奉行公开、公平的用工原则，以开放包容的姿态招募员工，建设高素质人才队伍。

Mingyang Smart Energy has been firmly establishing the scientific development concept of "people-oriented", actively improving the consultation and coordination mechanism involving the government, trade unions and enterprises, and building a harmonious labor relationship. For a long time, the company has provided employees with a safe and comfortable working and living environment with high standards and high investment, paying attention to the promotion of talents and abilities and humanistic care. Pay attention to collective negotiation and dispute prevention and mediation. Committed to building a standardized and orderly, fair and reasonable, mutually beneficial win-win and harmonious and stable labor relations; Adhere to the principle of open and fair employment, recruit employees with an open and inclusive attitude, and build a high-quality talent team.

为充分调动员工的积极性和创造性，促进公司的经营发展，公司建立并持续完善薪酬管理体系，力求为员工提供具有竞争力的薪酬，实行男女同工同酬，拒绝任何歧视或差别待遇，实现有效的薪酬管理。

In order to fully prompt the positivity and creativity employees and promote the management and development of the company, it has established and continuously improved its salary management system, striving to provide employees with competitive salary, implementing equal pay for men and women for equal work, rejecting any discrimination or differential treatment, and realizing effective salary management.

为岗位付薪 Pay for Post

薪酬水平体现岗位价值差异

Salary Level Reflects Post Value Variance

为业绩付薪 Pay for Performance

薪酬水平体现业绩差异，强化业绩导向，薪随业绩变

Salary Level Reflects Performance Difference, Strengthens Performance Orientation, Salary Changes with Performance

为能力付薪 Pay for Competencies

薪酬水平体现能力差异，鼓励员工提升能力

Salary levels reflect competency differences and encourage employees to improve their competencies

体现透明、公正与公平的原则

Reflects the Principles of Transparency, Justice and Fairness

员工发展

Staff Development

为推动企业的可持续发展并提供强大的智力支撑，明阳智能建立并完善职业晋升通道，建立“双百人才规划”，设立“明阳智能大学”，设置干部（人才）管理室。公司按照“价值导向、公平公正、担当有为”的人才激励理念，建立健全激发员工发挥才干、渴望进步发展的人才提升体制和员工发展制度，鼓励科研和一线员工创业、创新，共同发展。

In order to promote the sustainable development of the enterprise and provide strong intellectual support, Mingyang Smart Energy has established and perfected the career promotion channel, established the "Double Hundred Talents Plan", set up the "Mingyang Smart Energy University" and set up the cadre (talent) management room. According to the talent incentive concept of "value orientation, fairness and justice, and commitment", the company has established and improved a talent promotion system and an employee development system that stimulate employees to play their talents and are eager for progress and development, and encourages scientific research and front-line employees to start businesses, innovate and develop together.

职业发展

Career Development

公司通过制定《职位等级管理办法》，规范员工岗位体系管理，完善员工职业发展通道。公司岗位体系分为：岗族、岗类、岗位三个层级，通过对企业战略导向理解及业务价值链分析划分出公司所需要的岗族；根据岗族内部价值链细分出岗类；通过岗位价值评估形成岗位层级，最终形成岗位。

The company has standardized the post system management of employees and improved the career development channel of employees by formulating the "post grade management method". The post system of the company is divided into three levels: post family, post type and post, and the post family required by the company is divided through the understanding of enterprise strategy orientation and the analysis of business value chain. According to the internal value chain of the gang clan, the gang class is subdivided. Post hierarchy is formed through post value evaluation, and finally posts are formed.



鼓励创业

Encourage Entrepreneurship

公司在自身发展的同时，为广大员工提供优质的发展和创业平台，我们倡导员工将个人价值的实现融入到明阳智能事业的持续发展中，使个人的成功与公司、行业和社会的发展结合起来，践行明阳人“发展清洁能源，造福人类社会”的庄严承诺。

At the same time of its own development, the company provides a high-quality development and entrepreneurship platform for its employees. We advocate that employees integrate the realization of personal values into the sustainable development of Mingyang Smart Energy, so as to combine personal success with the development of the company, industry and society, and fulfill our solemn commitment of "developing clean energy and benefiting human society".

培训理念 Training Philosophy

双百培育——通过持续考验，把高潜质的管理和技术人才识别出来，经过定向培养和实践锻炼，使之成长为公司的核心管理人才和高级专业技术人才，形成奖优惩庸、良性竞争、自我超越的人才发展环境。

重用领军——为领军型人才和学科带头人量身定制激励机制，吸引国际、国内领军型顶级人才加盟，为推荐和引进领军型人才做出贡献的人设置伯乐奖，让领军型战略人才受重用、有价值、有地位，更好地发挥自己的专长和能力。

Double Hundred Cultivation—Through continuous tests, the high-potential management and technology talent identification will be developed into the company's core management talents and senior professional and technical talents through targeted training and practical exercise, and a talent development environment featuring rewarding excellence and punishing mediocrity, healthy competition and self-transcendence will be formed.

Reuse of Leading Talents—Tailor the incentive mechanism for leading talents and academic leaders, attract top international and domestic leading talents to join in, set up Bole Awards for those who have made contributions in recommending and introducing leading talents, so that leading strategic talents can be reused, valued and valued, and better display their expertise and abilities.

公司持续开展人才培养，激发员工认同企业文化和核心价值观，培训胜任岗位的专业能力、核心能力。人才培养的关键在于动态调整各级人才的培养目标和内容，使战略和经营管理发展相匹配；其机制是持续优化阶梯状人才培养体系，增强各层次人才的孵化功能，保证所需人才的不断输出。2018 年度总培训时长 2,233 小时，开设项目课程员工满意度均达 95% 以上。

The company continues to carry out personnel training, to stimulate employees to identify with corporate culture and core values, and to train professional and core competence for positions. The key to personnel training is to dynamically adjust the training objectives and contents of personnel at all levels to match the development of strategy and management. The mechanism is to continuously optimize the ladder-shaped talent training system, enhance the incubation function of talents at all levels, and ensure the continuous output of needed talents. In 2018, the total training duration was 2,233 hours, and the satisfaction of employees who offered project courses was above 95%.





专业人才培养通道——长板凳项目 Professional Talent Training Channel-Long Bench Project

长板凳项目通过构建各个专业岗位序列的专业能力标准，开发相对应知识、技能课程体系，通过各岗位序列的专业能力培养，沉淀明阳智能专业岗位序列的板凳深度。明阳大学根据集团任职资格体系专业序列的能力标准及开发对应知识技能课程包，同步开发线上、线下学习课程。

The Long Bench Project has developed a curriculum system of corresponding knowledge and skills through the construction of professional competence standards for position sequence of various specialties, and precipitated the bench depth of position sequence of Mingyang Smart Energy Specialty through the professional competence training of position sequence. Mingyang University has developed online and offline learning courses simultaneously according to the group's ability standard for Qualification system's professional sequence and the corresponding knowledge and skills curriculum package.



管理人才培养通道——蓄水池工程 Management Talent Training Channel-Reservoir Project

蓄水池工程构建五个管理层级的胜任力标准，通过每一管理层级的胜任力标准建设，发展每一管理层级管理者的管理能力特质，最快实现管理者的升级转型，打造符合明阳智能特色的管理人才梯队，使得每一管理层级都有足够的人才储备。

The reservoir project builds competency standards for five management levels. Through the construction of competency standards for each management level, the management ability traits of managers at each management level will be developed to realize the upgrading and transformation of managers as soon as possible, and to create a management talent echelon with Mingyang's intelligent characteristics, so that each management level has sufficient talent reserves.



明阳大学是明阳智能下属的企业大学，秉承“在实践中学习，在学习中实践”的工作主线，着力打造一支能打硬仗、打胜仗的员工队伍，全力培育和提升明阳人卓越的战斗能力，为加快实现千亿明阳梦凝聚强大力量，提供不竭动能。

Mingyang University is an enterprise university affiliated to Mingyang Smart Energy. Adhering to the main line of "learning in practice and practicing in learning", Mingyang University strives to build a team of employees who can fight hard and win battles. It strives to cultivate and enhance the outstanding fighting ability of Mingyang people and provides inexhaustible momentum for accelerating the realization of the 100 billion Mingyang dream by gathering powerful strength.

明阳大学的设立，有效规范培训管理工作，充分利用培训资源，提高培训工作的效率，通过培训提高员工的整体素质，建立和健全人力资源开发与培训管理制度，有计划地组织员工参加培训，不断地提高员工的职业化水平与岗位技能，满足企业经营发展的需要，并鼓励员工进行自我培训。

The establishment of Mingyang University has effectively standardized training management, made full use of training resources, improved the efficiency of training work, improved the overall quality of employees through training, established and improved the human resources development and training management system, organized employees to participate in training in a planned way, continuously improved the professional level and job skills of employees, met the needs of business development, and encouraged employees to carry out self-training.



明阳大学宗旨 Purpose of Mingyang University

围绕战略和发展打造学习型组织

Building a Learning Organization Around Strategy and Development



明阳大学定位 Positioning of Mingyang University

- 是新能源普惠价值观传播者
A disseminator of new energy and inclusive values.
- 是学习型组织建设承担者
An undertaker of learning organization construction.
- 是人力资源挖掘主渠道
A main channel for human resources exploration

新进员工培养

New Employee Training

公司以培养“流着明阳血液”的明阳人为目标，在“学以致用”的原则指导下，将文化集训、专业集训、生产历练、专业培训四个阶段无缝衔接，建立全面培养体系，针对不同需求部门、不同地域实施定制化培养新进员工。

Under the guidance of the principle of "Fostering Mingyang Employees", the company aims to cultivate Mingyang, who is "flowing with Mingyang blood". It seamlessly integrates the four stages of cultural training, professional training, production experience and professional training, establishes a comprehensive training system, and implements customized training for new employees in different demand departments and different regions.



员工关怀

Staff Care

公司以人为本，组织各类员工活动，注重员工身心健康，丰富员工业余生活，增强员工对企业的认同感、归属感和幸福感，让明阳智能大家庭愈加温暖团结。

The company is people-oriented, organizes all kinds of employee activities, pays attention to the physical and mental health of employees, enriches their spare time life, enhances their sense of identity, sense of belonging and happiness to the enterprise, and makes the Mingyang Smart Energy family more warm and united.

第十一届运动会暨首届趣味运动会胜利举行

The 11th Games and the 1st Fun Games Held Successfully

2018年12月，明阳智能第十一届运动会暨首届趣味运动会在火炬开发区体育场举行。现场7支拔河参赛队伍和24支趣味运动参赛队伍整装列队，充分彰显能动向上的精神面貌。通过三个小时的激烈角逐：叶片公司、明阳电气、中山基地荣获拔河比赛一、二、三名；说什么队、工程运维1队、德风种子选手队、电控兄弟、载荷强度室、叁千队、风驰电掣队、泰阳队依序荣获趣味项目前八名，大家都在能动拼搏中放飞青春梦想。

In December 2018, the 11th Mingyang Smart Energy Games and the 1st Fun Games were held in the Stadium of Torch Development Zone. Seven tug-of-war teams and 24 fun sports teams were all lined up at the scene, fully demonstrating their dynamic and upward spirit. After three hours of intense competition, the blade company, Mingyang electric and Zhongshan base won the first, second and third places in the tug of war competition. Say what all team, project operation and maintenance team 1, Germany wind seed team, electric control brothers, load intensity room, 3,000 teams, lightning fast team, Taiyang team won the top eight interesting projects in sequence, everyone released their dreams of youth in dynamic struggle.



开展“能动明阳智能，不忘初心”知识竞赛

Carry out "Dynamic Mingyang Smart, Do not Forget Your Initiative Mind" Knowledge Competition

2018年1月，为宣扬公司能动文化内涵，建立明阳人共同价值观，弘扬践行能动文化，聚焦公司发展正能量，明阳智能举办“能动明阳智能，不忘初心”知识竞赛活动。

党群与明阳大学联合开发近300道企业历史与文化相关题库，各子公司与各系统单位内部组织激烈的参赛选拔PK赛，最终选拔出16支种子队伍参加集团知识竞赛。

In January 2018, in order to promote the connotation of the company's dynamic culture, establish the common values of the people of Mingyang, carry forward and practice the dynamic culture, and focus on the positive energy of the company's development, Mingyang Smart Energy held a "Dynamic Mingyang Smart Energy, Do not forget your initiative mind" knowledge competition.

The Party and the masses jointly developed nearly 300 question banks related to enterprise history and culture with Mingyang University. Each subsidiary and each system unit organized fierce competition and selection PK competition, and finally selected 16 seed teams to participate in the group knowledge competition.

“明阳智能，我们一路同行”摄影比赛

"With Mingyang Smart Energy, We Move Forward Together" Photography Competition

一等奖——《一次做对 专注于心》内蒙基地 李永强

First Prize-One Time Doing Right and Focus on Heart-Li Yongqiang, Inner Mongolia Base



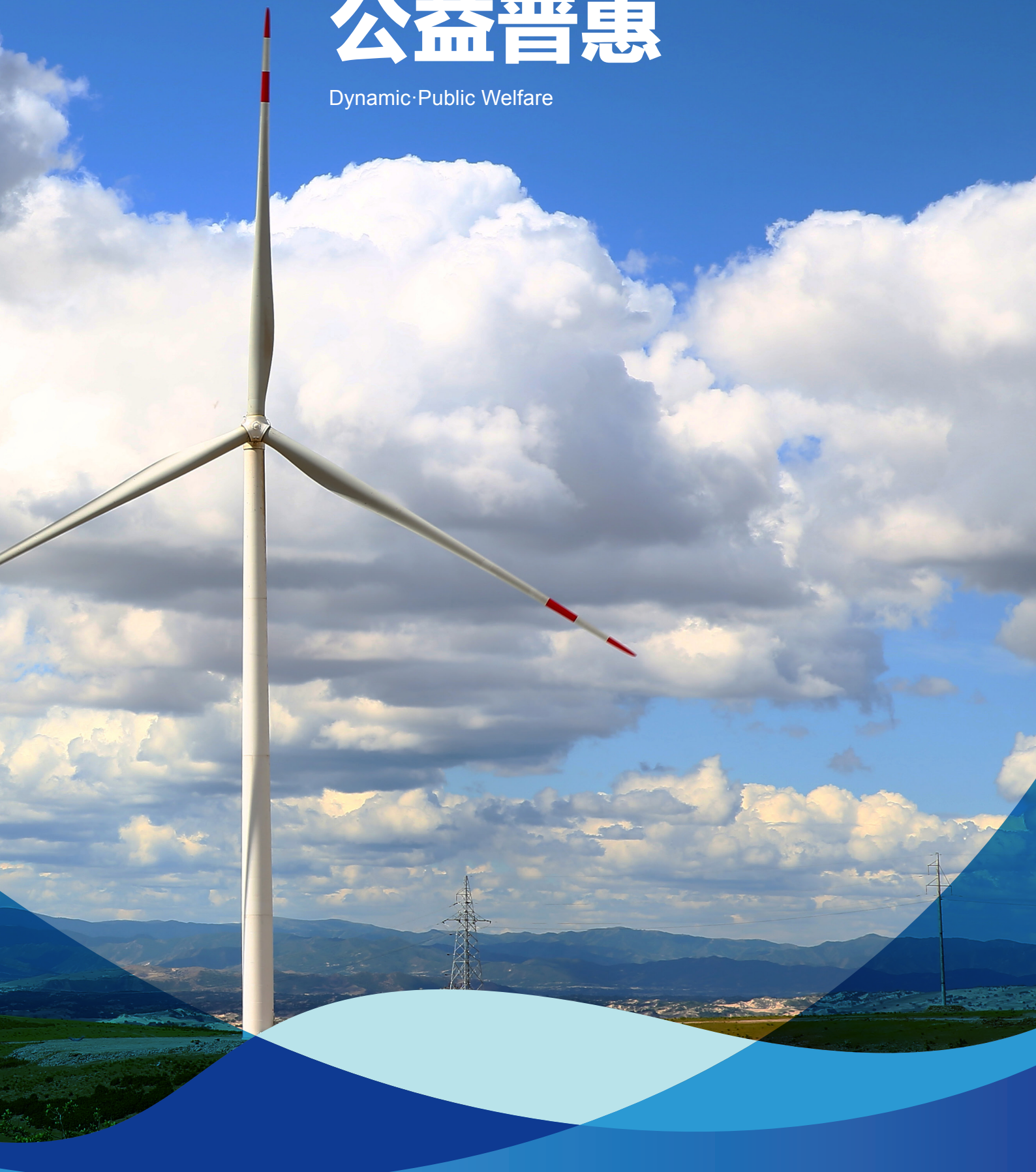
优胜奖——《挥汗五一》明阳智能 叶绮彤

Winning Prize-May Day Sweat-Ye Qitong, Mingyang Smart Energy



能动 · 公益普惠

Dynamic·Public Welfare



“一带一路” 加强能源合作

Strengthening Energy Cooperation in "The Belt and Road"

能源合作是共建“一带一路”的重点领域。我国同各国在共建“一带一路”框架内加强能源领域合作，为推动共同发展创造有利条件，共同促进全球能源可持续发展。明阳智能响应国家战略，依托《“十三五”能源规划》和相关能源政策，积极参与“一带一路”能源合作，与沿线国家展开新能源开发与合作对话，向世界展示中国海上风电领先技术，极大促进我国和世界清洁能源的跨越性发展和转型。

Energy cooperation is the key area in building "The Belt and Road" economic belt. China, along with other countries, has been strengthening cooperation in the energy area of "The Belt and Road", which creates favorable conditions for promoting common development and jointly promotes the sustainable development of global energy. Mingyang Smart Energy actively participates in "The Belt and Road" energy cooperation by responding to the national strategy. Relying on the Energy Planning for the 13th Five-Year Plan and related energy policies, Mingyang Smart Energy has launched new energy development and cooperation dialogue with the countries along "The Belt and Road" economic belt, presenting the leading technology of China's offshore wind power to the world, which greatly pushes forward the leaping development and transformation of clean energy in China and the world.

张传卫董事长“一带一路”能源会议受邀出席发言

Chairman of the Board Zhang Chuanwei Was Invited to Attend "The Belt and Road" Energy Forum and Gave Speech.

2018年10月18日，“一带一路”能源部长会议和国际能源变革论坛在江苏省苏州市隆重开幕，国家主席习近平向会议致信表示热烈祝贺。明阳智能董事长兼首席执行官张传卫受邀出席会议，并在国际能源变革主论坛上作主旨点评发言。

Belt and Road Ministerial Conference and International Forum on Energy Transitions was held in Suzhou City, Jiangsu Province, on 18 October 2018. President Xi Jinping sent a warm congratulatory letter to the Conference. Zhang Chuanwei, chairman and CEO of Mingyang Smart Energy, was invited to attend the Conference and made a keynote speech at the main forum of international energy transitions.



汉堡风能展尽显明阳智能风采

Mingyang Smart Energy Presents Its Advantages on the Wind Energy Hamburg

2018年9月25-28日，明阳智能携拳头产品及解决方案亮相全球最大风能盛会——汉堡国际风能展，与参会欧洲政府代表、国际风电行业展开对话，在世界舞台上与全球风电同仁共论风电发展的未来。在展会现场，公司发布了MySE4.0-145风机和基于全生命周期的智慧数字解决方案。



On September 25-28, 2018, Mingyang Smart Energy's knock-out products and solutions were unveiled at the world's largest wind energy event, the Wind Energy Hamburg. Mingyang Smart Energy had conversions with the representatives of the European government and the international wind power industry, exchanging ideas about the future of wind power development with the industry colleagues around the world. At the exhibition, the company released MySE 4.0-145 fans and a life-cycle-based smart digital solution.

风电扶贫，助力乡村振兴

Alleviate Poverty through Wind Power, Implement the Rural Revitalization Strategy

为高质量打赢脱贫攻坚战，明阳智能发挥新能源制造商优势，不断开展特色扶贫，以产业扶贫、就业扶贫和扶贫扶智三位一体的扶贫路径，实现新能源扶贫，助力乡村振兴。其中多项光伏村级扶贫项目作为十大精准扶贫工程之一，是明阳智能响应国家号召，积极开拓新能源扶贫新方法的表现。

To win the fight against poverty with high quality, Mingyang Smart Energy exploits the advantage as new energy manufacturers, continuously developing special strategy for poverty alleviation. Mingyang Smart Energy realizes new energy poverty alleviation and implements the rural revitalization through the three-in-one poverty alleviation approach of industrial targeted poverty alleviation, employment targeted and knowledge and intelligence targeted poverty alleviation. Among these strategies, village-level poverty alleviation through the multiple photovoltaic power system project is one of the ten targeted poverty alleviation projects, which is the representation of Mingyang Smart Energy's response to the national call of exploring new approaches to alleviate poverty by new energy.

产业扶贫

Industrial Targeted Poverty Alleviation

公司以产品创新推动了新能源电价去补贴化，将依赖政府补贴的行业推向平价上网，彻底消除风电行业未来发展预期的不确定性，使绿色能源从“补充能源”变为“替代能源”，把电价贵、建设投资高的高贵能源，转变为平民化的清洁能源，以低度电价格惠及贫困地区与人民，在产品升级的同时造福贫困地区，实现产业扶贫。

公司针对青海、云南等中西部贫困地区，研发了中低风速型风机、高原型风机、风光互补等定制化产品，使特殊环境不具备开发条件或不具有经济性的风电开发变成了可能。公司进而以风电整机为龙头，带动上下游产业集群建设，促进能源结构调整、产业转型升级，改变依赖化石能源开发的高污染高耗能产业格局，改变最贫困人民用最贵的电的现状，使当地人民实现能源自给自足，运用新能源脱贫。

The Company promotes to remove the electric charge subsidy of new energy through product innovation, helping the subsidy-dependended industry to use electricity at a fair price, which has completely eliminated the uncertainty of the future development of the wind power industry. The Company has transformed the green energy from “supplementary energy” to “alternative energy”. Once the highly electricity charged and heavily construction invested noble energy is now turned into civilian clean energy which benefit the poor areas and the people with lower charges. The Company has achieved industrial targeted poverty alleviation, benefiting the poverty-stricken areas while upgrading its products.

The Company has developed customized products such as low- and medium-speed wind turbines, high-profile wind turbines, and wind and solar hybrids for the poor areas in the central and western regions such as Qinghai and Yunnan, making it possible to develop wind power in environments without suitable development conditions or without economical profits. The Company takes the wind power machine as the leader force to drive the construction of upstream and downstream industrial clusters, accelerate energy restructuring, industrial transformation and upgrading. The Company strives to change the industrial pattern of high-pollution and high energy consuming industries that rely heavily on fossil energy development and the present situation that the poorest people are paying for the highest electric charges. The Company has enabled people in poor areas to achieve self-sufficiency in energy and use such new energy to alleviate themselves out of poverty.

就业扶贫

Employment Targeted Poverty Alleviation

在过去十几年中，明阳智能探索在欠发达地区、生态脆弱地区推行新能源，实现精准的靶向脱贫策略；通过建设超大型、中小型、微型新一代风电站和太阳能电站，保护生态环境、普惠贫困地区的农民和牧民。

Over the past decade, Mingyang Smart Energy has explored the implementation of new energy resources in underdeveloped areas and ecologically fragile areas. Mingyang has achieved targeted poverty alleviation in such areas through the construction of super-large, small and medium-sized, micro-sized new generation wind and solar power plants. Mingyang has protected the ecological environment and farmers and herdsmen in poor areas through these approaches.

2008年，明阳智能在东北老工业基地吉林成立的吉林明阳风电技术有限公司，安置就业人数近800人，其中下岗再就业252人，复员军人4人，培训各类人员487人。截止2018年末，吉林明阳智能风电技术有限公司已在当地累计缴纳税款1.3亿元，有力支持东北老工业基地的振兴。

2018年，青海基地完成2.84亿元产值，带动上下游产业链，招收当地贫困家庭员工，解决近百人就业，员工平均年收入八万元左右，远远高出当地平均水平。

截止2018年末，明阳智能已在或正在云南大理、甘肃酒泉、内蒙锡盟、新疆吐鲁番等西北、西南和华北偏远地区投资建设产业基地或风电项目，通过产业链集聚效应为当地及其周边地区的发展发挥了积极的推动作用。

In 2008, Mingyang Smart Energy has established Jilin Mingyang Wind Power Technology Co., Ltd. in an old industrial base in Northeast China. This company has nearly 800 employees, including 252 laid-off and re-employed, 4 demobilized soldiers and 487 trained personnel of all kinds. By the end of 2018, Jilin Mingyang Smart Energy Wind Power Technology Co., Ltd. has paid a cumulative local tax of 130 million yuan, which strongly supports the revitalization of the old industrial base in Northeast China.

In 2018, Qinghai Base has achieved an output value of 284 million yuan, becoming the driving force of the upstream and downstream industrial chain. Qinghai Base has offered nearly 100 jobs to local poor family. The average annual income of its employees is about 80,000 yuan, far higher than the local average level.

By the end of 2018, Mingyang Smart Energy has invested and has been investing the construction of industrial bases or wind power projects in remote areas of Northwest, Southwest and North China, such as Dali in Yunnan, Jiuquan in Gansu, Inner Mongolia's Xilingol League and Turpan in Xinjiang. Mingyang Smart Energy has played an active role in promoting the development of the local and its surrounding areas through the agglomeration effect of industrial chain.

扶贫扶智

Knowledge and Intelligence Targeted Poverty Alleviation

明阳智能除了通过在贫困地区发展基地以及项目外，还通过教育事业实现精准扶贫。明阳智能先后被评为“中山市最具社会责任企业”、“广东省诚信示范企业”。

自2000年捐建河南固始县“希望工程”起，明阳智能先后向汕尾市陆河县对门小学、广东省妇女、儿童基金会、中央民族教育基金、河源市职业技术学院教学楼建设资金等教育基金实行定向捐赠。

Over the past decade, Mingyang Smart Energy has explored the implementation of new energy resources in underdeveloped areas and ecologically fragile areas. Mingyang has achieved targeted poverty alleviation in such areas through the construction of super-large, small and medium-sized, micro-sized new generation wind and solar power plants. Mingyang has protected the ecological environment and farmers and herdsmen in poor areas through these approaches.

Since the donation of "Hope Project" in Gushi County of Henan Province in 2000, Mingyang Smart Energy has made directional donations to educational funds as Duimen Primary School in Luhe County of Shanwei City, Guangdong Women and Children Fund, Central Fund for Ethnic Education, and Teaching Building Construction Fund of Heyuan Vocational and Technical College.

此外，明阳智能从 2002 年起在中山市一中设立长期奖学金，鼓励学生努力学习、奋发图强；为给同学们创造良好的学习环境，2010-2011 年，明阳智能捐资 200 万元给中山市一中，用于校园建设及教育经费；2011 年明阳智能又为中山市石岐中学小学捐赠 5 万元用于学校教育。

In addition, Mingyang Smart Energy has set up a long-term scholarship in Zhongshan No. 1 Middle School to encourage students to study hard and strive to be better since 2002. To provide a good learning environment for students, Mingyang Smart Energy donated 2 million yuan to Zhongshan No. 1 Middle School In 2010-2011 for campus construction and education funds from 2010 to 2011. Mingyang Smart Energy donated 50,000 yuan to Zhongshan Shiqi Primary School and Middle School for school education in 2011.



右玉县光伏扶贫电站，助力新能源扶贫

Photovoltaic Poverty Alleviation Power Station In Youyu County To Help Accomplish New Energy-Adopted Poverty Alleviation

2018 年，为充分开发利用右玉县丰富的风能资源，促进能源产业快速发展，加快脱帽摘帽步伐，明阳智能为右玉县建档立卡贫困村无偿建设 3 座村级光伏扶贫电站，总容量达 2,759KWp，总价值达 2,000 万元。扶贫电站建成后，将对县内建档立卡贫困户特别是无劳动能力的或者弱劳动能力的特困户带来极大益处，以实际付出助力右玉县实现精准扶贫。

In 2018, Mingyang Smart Energy has built three village-level s in profiled Youyu County, with a total capacity of 2,759 KWp and a total value of 20 million yuan, which intends to fully exploit and utilize the abundant wind energy resources in that area, accelerate the development of energy industry and speed up the pace of taking off the record of poverty-stricken village. After the completion of the poverty alleviation power station, it brings great benefits to the poor households in the county especially those with no or weak working ability. The company has made actual efforts to help Youyu County and.

全方位探索公益实践

Exploring All Approaches in the Public Welfare Practice

明阳智能将自身视为社区的一份子，通过发挥自身影响力，应用专业优势和技术经验全方位探索公益实践，持续进行慈善捐赠，开展公益运动，为社区的发展作出自己的贡献。

Mingyang Smart Energy has always seen itself as a part of the community. Mingyang Smart Energy makes its own contribution to the development of the community through exerting its influence, applying professional advantages and technical experience to explore all approaches in the public welfare practice, continuing to make charitable donations as well as carrying out public welfare activities.

慈善捐赠

Charitable Donation

明阳智能向驻马店慈善总会捐赠善款

Mingyang Smart Energy Donates to Zhumadian Charity Association

2018年1月4日，明阳智能河南代表处首席代表兼河南总经理旷晏，带领河南区域部分人员在驻马店慈善总会参加了公司对驻马店市慈善总会捐赠善款的签约仪式，善款主要用于驻马店确山县博世学校建设项目。驻马店慈善总会向明阳智能颁发了荣誉证书，下午旷晏一行冒着严寒，踏着瑞雪，专程到博世学校看望了学校的在校师生。

Kuang Yan, Mingyang Smart Energy's chief representative of Henan Representative Office and general manager of Henan Province led a team to attend the signing ceremony of the Company's donation to Zhumadian Charity Association on January 4, 2018. The donation is mainly for the construction project of Boshi School in Zhumadian County. Zhumadian Charity Association awarded the honorary certificate to Mingyang Smart Energy. In that afternoon, Kuang Yan and his team went to Bosch School to visit the teachers and students of the school in the severe cold and heavy snow.

公司设立明阳集团爱心基金，截止2018年年末，共收到捐款约三百万余元，累计帮扶慰问员工近百人次。

The company has set up the Mingyang Group Care Fund. By the end of 2018, it has received donations of more than 3 million yuan, helping nearly 100 employees.

公司2012-2019年间，共达成公益性捐款 10,813,038 元

From 2012 to 2019, the company has donated a total of 10,813,038 yuan for public welfare.

慈善万人行

Charity Of Great Parade

2018年3月2日，明阳智能五十多名员工组成的方阵参加中山市第31届慈善万人行巡游活动，彰显了明阳人的能动、博爱精神。

More than 50 employees of Mingyang Smart Energy participated in the 31st charity parade in Zhongshan City on March 2, 2018, showing the initiative and philanthropic spirit of Mingyang people.



“爱运和谐 心动梦想”公益慢跑

"Love Harmony and Sport, Heart Embraces Dream" Public Welfare Jogging

2018年4月8日，明阳智能在北京奥林匹克森林公园举办了“爱运和谐 心动梦想”公益慢跑活动。活动全程10公里，全体参与者累计运动步数近50万步，共捐出500株爱心树，用于改善阿拉善地区5,000平米荒漠。

Mingyang Smart Energy held a public welfare jogging activity called "Love Harmony and Sport, Heart Embraces Dream" in Beijing Olympic Forest Park on April 8, 2018. The jogging lasts 10 kilometers, and the total number of steps is nearly 500,000. A total of 500 trees were donated to improve 5,000 square meters desert in Alashan.

未来展望

Future Outlook

新起点，新征程，整装再出发！

回首 2018 年，我们聚焦引领市场、产业转型、大风机、海上风电、产融协同、人力资源结构优化、海外突破七大领域，全身心拥抱行业调整与能源变革时代，坚定朝着“全球清洁能源智慧化、普惠制领导者”的战略目标迈进。

其中，我们完成十亿元绿色债券的注册和五亿元绿色债券的发行，并在 2019 年 1 月举全公司之力完成了红筹回归 A 股，期待在资本市场上创造更多的经济价值和社会价值。

2019 年是关系我们中长期发展战略的开局之年，是夯实基础培育未来竞争力的关键之年，我们必须强练内功、效益为先，坚定一个战略定位，围绕“以整体解决方案为引领的智能制造、以创新盈利模式为核心的智慧能源解决方案运营”两大经营主线，抓好六大能力建设，打好七场重点战役，为实现战略目标积蓄发展竞争力。

New starting point, new journey, get ready and set out again!

Looking back on 2018, we focus on seven areas of leading the market, industrial transformation, wind turbines, offshore wind power, integration of production and finance, structure optimization on human resources and overseas breakthroughs. We embrace the era of industry restructuring and energy transition wholeheartedly, firmly moving towards the strategic goal of "intelligent global clean energy, inclusive system leaders".

In 2018, we have registered 1 billion yuan of green bonds and issued 500 million yuan of green bonds. In January 2019, we completed the returning of red chips to A shares with the whole company's efforts. We look forward to creating more economic and social values in the capital market.

2019 is the beginning year of our medium and long-term development strategy and the key year to consolidate the foundation and cultivate future competitiveness. We must first strengthen our internal skills and give priority to the efficiency. We shall make clear one strategic position and the two main lines of "intelligent manufacturing guided by overall solutions, and intelligent energy solution operation centered on innovative profit model". We shall lay emphasis on training six major capabilities and well perform in the seven key battles to accumulate and develop competitiveness for accomplishing strategic goals.

- 积极推动海上风电项目，建设高回报优质资产；
Push forward offshore wind power projects and create high-return high-quality assets;
- 发力大风机战略，创新产品与技术；
Adhere to the strategy of developing power-generating large fan and upgrade products and technology;
- 提高运维能力，转型智慧化整体解决方案提供商；
Improve operation and maintenance performance, and transform into intellectualized overall solution providers;
- 改进公司运营体系，实现年度经营目标。
Improve the company's operating system to achieve the annual business goals.

展望未来，十三五后半期，能源变革继续深化，智能浪潮刚刚启动，我们从事的智慧能源行业仍是一个激动人心和充满希望的行业。2019年是奠定我们战略推进的关键之年，事关明阳智能未来发展和前途命运。我们将打赢卓越运营、整体解决方案、海上风电、产业升级、全生命周期价值管理与服务、敏捷组织和全球化布局七大战役，以破釜沉舟的决心、勇敢果决的行动，拥抱变革，拥抱未来；以精细化管理、规范化运作，回报股东，回馈社会。

Looking at the future, energy reform will continue to deepen, in the period of the 13th Five-Year Plan. The wave of intelligence has just started. The smart energy industry we are engaged in is still an exciting and hopeful industry. 2019 is the key year for Mingyang Smart Energy to lay the foundation for our strategies, which will have significant impact on the future development and the destiny of the company. We shall strive to win the seven battles of excellent operation, overall solution, offshore wind power, industrial upgrading, life-cycle value management and service, agile organization and global layout. We shall fight together with the determination to act in resolute attitude. We shall embrace change and the future, to return our shareholders and the society with fine management and standardized operation.

指标索引

Indicators Index

联合国可持续发展目标索引表

United Nations Index of Sustainable Development Goals

可持续发展目标 Sustainable Development Goals	对应报告页码 Corresponding report page
无贫穷 No Poverty	P10、P95-99
零饥饿 Zero Hunger	P10、P95-99
良好健康与福祉 Good Health and Well-being	P57-60、P91-92
优质教育 Quality Education	P86-90
性别平等 Gender Equality	P84
清洁饮水和卫生设施 Clean Water and Sanitation	P74-82
经济适用的清洁能源 Affordable and Clean Energy	P74-82
体面工作和经济增长 Decent Work and Economic Growth	P84-92
产业、创新和基础设施 Industry, Innovation, and Infrastructure	P64-72
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负责任生产和消费 Responsible Consumption and Production	P94-100
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水下生物 Life Below Water	P74-82
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全球报告倡议组织《可持续发展报告标准》索引表
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102-8	<p>员工和其他工作者信息</p> <p>Information of employees and other workers</p> <p>a. 按雇佣合同（固定和临时）和性别划分的员工总人数</p> <p>a. Total number of employees divided according to the employment contract (fixed and temporary) and genders</p> <p>b. 按雇佣合同（固定和临时）和地区划分的员工总人数</p> <p>b. Total number of employees divided according to the employment contract (fixed and temporary) and regions</p> <p>c. 按雇佣类型（全职和兼职）和性别划分的固定员工总人数</p> <p>c. Total number of fixed employees divided according to the types of employment (full-time and part-time) and genders</p> <p>d. 组织的活动是否有一大部分由非正式员工承担，如适用，请描述由非正式员工所承担工作的性质与比例</p> <p>d. Whether a majority of organized activities are undertaken by informal employees. If applicable, please describe the nature and proportion of jobs undertaken by informal employees</p> <p>e. 102-8-a, 102-8-b 和 102-8-c 所披露的雇佣人数的重大变化（如旅游或农业雇佣人数的季节变动）</p> <p>e. Significant changes in number of hired employees disclosed in 102-8-a, 102-8-b and 102-8-c</p> <p>f. 说明数据统计方法，包括做出的任何假设</p> <p>f. To describe the statistical methods of data including any assumption made</p>	P12、P64
102-9	<p>描述组织的供应链情况，包括与组织活动、主要品牌、产品与服务相关的主要内容</p> <p>To describe the supply chain condition of the organization, including the main contents related with organization activities, main brands, products and services</p>	P61-62
102-10	<p>报告期内组织规模、架构、所有权或供应链发生的重要变化（包括经营位置或业务变化；股本架构改变和其他资本形成、维修及业务变更；供应商所在地、供应链结构、与供应商关系的变化）</p> <p>Significant changes occurred on the size of organization, framework, ownership or supply chain within reporting period (including changes in operation position or business; framework changes in capital stock and formation, maintenance and business changes, changes in the supplier's location, the supply chain structure and relationship with the supplier)</p>	P61-62
102-11	<p>组织是否运用以及如何运用预警原则或方针</p> <p>Whether the organization utilizes and how to utilize the pre-warning principle or policy</p>	不适用

102-12	组织参与或支持的外界发起的经济、环境、社会章程、原则或其他倡议 Economic, environmental and social constitutions, principles or other proposals sponsored by the outside world and taken part in or supported by the organization	P72
102-13	组织加入的主要行业协会或其他协会，以及国家或国际性倡议组织 Main industry associations or other associations taken part in by the organization and national or international proposal organization	P72
战略 Strategy		
102-14	组织最高决策者（如 CEO、主席或同等高级职位）就可持续发展与组织的相关性及组织可持续发展战略的声明 Statement by the top decision maker (such as CEO, president or equal senior positions) of the organization in terms of sustainable development, relevance of organization and sustainable development strategy of organization	P05-06
102-15	描述关键影响、风险及机遇 To describe key influences, risks and opportunities	P05-06
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102-18	管治架构 Governance framework a. 组织的管治架构，包括最高管治机构委员会； a. Governance framework of organization, including the top governance organization committee; b. 负责经济、环境和社会议题决策的委员会 b. Commission to be responsible to decide economic, environmental and social topics	P42-44
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102-42	就所选定的利益相关方，说明识别和选择的根据 To describe bases for recognition and selection in terms of the selected interested parties	P28-29
102-43	利益相关方参与的方法，包括按不同的利益相关方类型及组别的参与频率，并指明是否有任何参与是专为编制报告而进行 Participation methods of interested parties including indicating whether any participation is conducted specially for preparing reports according to the participation frequency of different types and group categories of interested parties	P28-29
102-44	通过利益相关方参与提出的主要议题和关切问题，包括组织是如何回应的，以及提出每个主要议题和关切问题的利益相关方群体 Main topics and concerned problems proposed through involvement of interested parties, including the organization's responding ways, the group of interested parties putting forward each main topic and concerned problem	P28-29
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102-45	合并财务报表中所涵盖的实体 Covered entities in the consolidated financial statements a. 列出机构的合并财务报表或同等文件中包括的所有实体 a. To list all the entities included in the consolidated financial statements or the similar documents of the organization b. 说明在合并财务报表或同等文件包括的任何实体中，是否有未纳入可持续发展报告的实体 b. To describe whether there is an entity not to be included into sustainable development reports in any entity included in the consolidated financial statements or the similar documents	P01-02
102-46	界定报告内容和议题边界 To define the content of the report and boundaries of topics a. 说明界定报告内容和议题边界的过程 a. The process to describe and define the content of the report and boundaries of topics b. 说明组织如何应用界定报告内容的报告原则 b. The report principle to describe how the organization applies and defines the content of the report	P31-32
102-47	列出在界定报告内容的过程中确定的所有实质性议题 To list all the material topics confirmed in the process of defining the content of the report	P31-32
102-48	说明重订前期报告所载信息的影响，以及重订的原因 To describe the impacts of revising information recorded in the report in the early stage and reasons for revision	不适用
102-49	与之前的报告相比，说明实质性议题、议题边界的重大变动 To describe the significant changes in material topics and topic boundaries compared with previous reports	不适用

102-50	所提供信息的报告期（如财务年度或日历年度） Report period of provided information (such as financial year or calendar year)	P01-02
102-51	上一份报告的日期（如适用） Date of the last report (if applicable)	不适用
102-52	报告周期（如每年一次、两年一次） Reporting period (such as once every one year or once every two years)	P01-02
102-53	可回答报告或其内容相关问题的联系人信息 Contact information to answer the relevant questions of the report or its contents	P01-02
102-54	组织声明报告编制依据 GRI 标准选择核心或全面方案 To select core or comprehensive schemes according to GRI standard for the preparation of the organization's statement report	P01-02
102-55	在 GRI 内容索引中详细说明采用的每一项标准，相应列出报告披露的所有内容。每一项披露内容应包括该项披露的编号、页码或 URL。如适用并在允许的情况下，在不能进行必要披露时，要求提供从略原因 To give a detailed description about each standard adopted in GRI content index and correspondingly list all the contents disclosed in the report. Each disclosure content shall include the serial number, page or URL of the disclosure. If applicable and permissible, omission reasons shall be supplied when necessary disclosure cannot be carried out.	P104-114
102-56	外部鉴证 External authentication a. 针对报告寻求外部鉴证的现行做法描述及组织政策描述 a. Description of existing practices and organization policies to seek for external authentication in the report b. 如果报告经过外部鉴证，需要引用鉴证报告、声明和意见。如未在可持续发展报告附带的鉴证报告中列出，则需说明已鉴证和未鉴证内容及根据，包括采用的鉴证标准、获得鉴证水平，以及鉴证过程中的任何限制。说明报告机构与鉴证服务方之间的关系。说明最高治理机构或高级管理人员是否参与为可持续发展报告寻求鉴证 b. If the report passes external authentication If the report passes external authentication, it is required to cite authentication reports, statements and opinions. If they are not listed in the authentication report annexed with sustainable development reports, then it is required to describe contents and bases with or without authentication, including the adopted authentication standard, acquired authentication level and any limits in the process of authentication. It is used to describe the relationship between reporting bodies and authentication service parties. It is used to describe whether the supreme governance organization or senior managers participate in seeking for authentication of sustainable development reports.	P115-118

经济 Economics		
103-1	<p>对于每一个实质性议题，说明议题具有实质性的原因，实质性议题的边界，以及有关议题边界的任何特定限制</p> <p>To describe material reasons of the topic, boundaries of material topics and any specific limit for boundaries of relevant topics for each material topic</p>	P31-32
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103-3	<p>对组织如何评估管理进行说明（包括评估管理方法有效性所使用的机制；管理方法的评估结果；对管理方法进行的任何相关调整）</p> <p>To describe how the organization conduct assessment and management (including mechanism used to assess the effectiveness of management methods; assessment results of management methods; any relevant adjustments for management methods)</p>	P31-32
经济绩效 Economic performance		
201-1	<p>机构直接产生和分配的经济价值</p> <p>Economic values directly produced and allocated by organizations</p> <p>a. 基于权责发生制而产生和分配的直接经济价值，包括组织的全球业务的基本组成部分，如果以收付实现制呈现数据，还要报告作出该决定的理由</p> <p>a. Direct economic value produced and allocated based on accrual basis, including basic constituent parts of global businesses in organization (if data are presented in cash system of accounting, it is necessary to report the reason for the decision)</p> <p>b. 在国家、地区或市场层面分别报告产生和分配直接经济价值，以及报告用于界定重要性的标准</p> <p>b. Respectively reporting to produce and allocate direct economic values and reporting standards to define significance on the state, region or market level</p>	P11-12
间接经济影响 Indirect economic impact		
203-1	<p>基础设施投资和支持性服务</p> <p>Infrastructure investment and supporting services</p> <p>a. 重大基础设施投资和支持性服务的发展程度</p> <p>a. Development degree of major infrastructure investment and supporting services</p> <p>b. 对社区和地方经济的当前或预期正负面影响</p>	P94-100

	<p>b. Current or expected positive and negative impacts of community and territorial economy</p> <p>c. 投资和服务是商业性、实物性或无偿性的活动</p> <p>c. Investments and services are commercial, physical or free activities</p>	
203-2	<p>重大间接经济影响和影响的重要性</p> <p>Significant indirect economic impacts and importance of impacts</p>	P94-100
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103-1	<p>对于每一个实质性议题，说明议题具有实质性的原因，实质性议题的边界，以及有关议题边界的任何特定限制</p> <p>To describe material reasons for each material topic, boundaries of material topics and any specific limitation for boundaries of related topics</p>	P31-32
103-2	<p>管理方法及其组成部分</p> <p>Management methods and their constituent parts</p> <p>a. 组织如何管理此议题的说明</p> <p>a. Description that how the organization manages the topic</p> <p>b. 管理方法的目的陈述</p> <p>b. Purpose statement of management methods</p> <p>c. 对政策、承诺、目的和目标、责任、资源、申诉机制和具体行动的描述</p> <p>c. Description for policies, commitments, purposes and goals, responsibilities, resources, complaint mechanism and concrete actions</p>	P31-32
103-3	<p>对组织如何评估管理进行说明（包括评估管理方法有效性所使用的机制；管理方法的评估结果；对管理方法进行的任何相关调整）</p> <p>To describe how the organization assesses and manages (including mechanisms used for effectiveness of assessment management methods; evaluation results of management methods; any relevant adjustments for management methods)</p>	P31-32
能源 Energy		
302-1	<p>组织内部的能源消耗量（以焦耳或倍数表示）</p> <p>Energy consumption in organization (in Joule or multiple)</p> <p>a. 组织内部的不可再生来源燃料消耗总量，包括所使用的燃料类型</p> <p>a. Total consumption of non-renewable source fuels in the organization including used categories of fuels</p> <p>b. 组织内部的可再生来源燃料消耗总量，包括所使用的燃料类型</p> <p>b. Total consumption of renewable source fuels in the organization including used categories of fuels</p> <p>c. 耗电量、耗热量、耗冷量、耗汽量</p> <p>c. Power consumption, heat consumption, cold amount consumption and steam consumption</p> <p>d. 售电量、售热量、售冷量、售气量</p> <p>d. Power sale quantity, heat sale amount, cold sale amount, and steam sale amount</p> <p>e. 组织内部的能源消耗总量</p> <p>e. Total energy consumption in organization</p>	P12、P66-68、P81-82

	<p>f. 使用的标准、方法、假设和 / 或计算工具、使用的换算系数来源</p> <p>f. Used standards, methods, assumptions and/or computation tools and used conversion ratio source</p>	
302-3	<p>能源强度</p> <p>Energy intensity</p> <p>a. 组织的能源强度比，及用于计算此比率的组织特定指标</p> <p>a. Energy intensity ratio of organization and specific indexes of organization to calculate the ratio</p> <p>b. 强度比中包含的能源类型</p> <p>b. Types of energy included in intensity ratio</p> <p>c. 该比率使用的是组织内部的能源消耗量、组织外部能源消耗量还是二者兼有</p> <p>c. Whether the ratio adopts the energy consumption of the organization, energy consumption outside the organization or both</p>	P12、P66-68、P81-82
302-4	<p>减少的能源消耗量（以焦耳或倍数表示）</p> <p>Reduced energy consumption (in Joule or multiple)</p> <p>a. 由节约和能效举措直接促成的节能量</p> <p>a. Energy saving directly caused by saving and energy efficiency measures</p> <p>b. 节能量中包含的能源类型</p> <p>b. Energy type included in amount of energy saving</p> <p>c. 计算节能量所使用的依据，例如基准年或基线，并说明选择理由</p> <p>c. To calculate the basis used for amount of energy saving, such as base year or base line, and describe reasons to select</p> <p>d. 使用的标准、方法、假设和 / 或计算工具</p> <p>d. Used standards, methods, assumptions and/or calculation tools</p>	P12、P66-68、P81-82
302-5	<p>降低产品和服务的能源需求（以焦耳或倍数表示）</p> <p>Reducing energy demands of products and services (in Joule or multiple)</p> <p>a. 报告期内达到的所售产品和服务的能源减少要求</p> <p>a. Energy reduction requirements for sold products and services reached in the reporting period</p> <p>b. 计算节能量所使用的依据，例如基准年或基线，并说明选择理由</p> <p>b. To calculate basis used for amount of energy saving, such as base year or base line, and describe reasons for selection</p> <p>c. 使用的标准、方法、假设和 / 或计算工具</p> <p>c. Used standards, methods, assumptions and/or computation tools</p>	P12、P66-68、P81-82
水资源 Water resources		
303-1	<p>按源头细分说明总取水量，并说明使用的标准、方法和假设（包括地表水；地下水；由组织直接收集和储存的雨水；来自另一个组织的废水；市政供水或其他）</p> <p>To describe total water withdrawal according to the source subdivision and used standards, methods and assumptions (including surface water; underground water; rainwater directly collected and stored by the organization; waste water from another organization; municipal water supply or others)</p>	P12

排放 Emission		
305-1	直接温室气体排放量（范畴一） Direct greenhouse gas emissions (Category I)	P74
305-2	能源间接温室气体排放量（范畴二） Indirect greenhouse gas emissions of energy sources (Category II)	P74
305-4	温室气体排放强度 Greenhouse gas emission intensity	P74
污水和废弃物 Waste water and garbage		
306-2	按类别及处理方法分类的废弃物总重量（包括危险废弃物总重量；非危险废弃物总重量；确定废弃物处理方法的过程） Total weight of garbage classified according to categories and processing methods (including total weight of hazardous waste; total weight of nonhazardous waste; process to confirm processing methods of wastes)	P78-80
环境合规 Environmental compliance		
307-1	违反环境法律法规被处重大罚款货币总值、非货币制裁总数，以及通过争端解决机制提起的案件，如未发生该情况，对事实做出简要说明即可 Total monetary value of significant fines punished for violation of environmental laws and regulations, total number of non-currency sanction and cases proposed through dispute settlement mechanism. If the circumstance does not occur, please make a brief description for the fact	不适用
社会 Society		
103-1	对于每一个实质性议题，说明议题具有实质性的原因，实质性议题的边界，以及相关议题边界的任何特定限制 For each material topic, it is necessary to describe the material reason of the topic, boundary of material topics and any specific limitation for boundaries of relevant topics	P31-32
103-2	管理方法及其组成部分 Management methods and their constituent parts a. 组织如何管理此议题的说明 a. Description about how the organization manages the topic b. 管理方法的目的陈述 b. Purpose statement of management methods c. 对政策、承诺、目的和目标、责任、资源、申诉机制和具体行动的描述 c. Descriptions about policies, commitments, purposes and goals, responsibilities, resources, complaint mechanism and specific actions	P31-32

103-3	对组织如何评估管理进行说明(包括评估管理方法有效性所使用的机制; 管理方法的评估结果; 对管理方法进行的任何相关调整) To describe how the organization conducts assessment and management (including mechanism used to assess the effectiveness of management methods; assessment results of management methods; any relevant adjustments for management methods)	P31-32
雇佣 Employment		
401-1	按年龄组别、性别及地区划分的新进员工和流失员工总数及比例 Total number and proportion of new and lost employees by age group, genders and regions	P84
401-3	按性别划分, 有权享受育儿假 / 休育儿假 / 育儿假结束后在报告期内返岗 / 育儿假结束后返岗且 12 个月后仍在职的员工总数, 及休假员工返岗率和留任率 Total number of employees with the right to enjoy the child-care leave/ on the child-care leave /returning to work within the reporting period after ending the child-care leave /in-service employees returning to work after ending the child-care leave and after 12 months and ratio of return to work and survival rate of employees by genders	P84
职业健康与安全 Occupational health and safety		
403-2	工伤类别、工伤、职业病、损失工作日、缺勤等比率 Category of occupational injury, occupational injury, occupational disease, lost workdays, absence from duty and other ratios	不适用
培训与教育 Training and education		
404-1	按性别和员工类别划分, 每名员工每年接受培训的平均小时数 Average number of hours for each employee to annually accept training according to the gender and categories of employees	P85-90
404-2	员工技能提升方案和为促进持续性就业能力及对退休或离职导致的职业生涯终止的管理而提供的过渡性协助方案 Employees' skill promotion scheme and transitional assistance scheme supplied to promote continuous employability and with management for career termination caused by retirement or dimission	P85-90
404-3	按性别和员工类别划分, 接受定期绩效及职业发展考评的员工的百分比 Percentages of employees receiving regular performances and career development assessments to divide according to genders and categories of employees	P85-90
多样化与机会平等 Diversification and equality of opportunity		
405-1	按性别、年龄组别及其他多元化指标划分, 管治机构成员和各类员工的百分比 Dividing according to genders, age group and other diversified indexes and governing and controlling the members of the organization and percentages of all employees	P84

反歧视 Anti-discrimination		
406-1	报告期间发生的歧视事件总数及事件状况和采取的行动 Total number of discrimination incidents occurred during the reporting period and condition of incidents and actions taken	不适用
童工 Child laborer		
408-1	具有使用童工，使用年轻工作者从事危险工作的运营点和供应商；具有重大童工事件风险的运营点和供应商以及组织在报告期为促进有效废除童工而采取的措施 Operation points and suppliers employing child laborers or using young workers to be occupied in dangerous work; operation points and suppliers with significant child laborer incident risks and measures taken by organizations in the reporting period to promote the valid abolishment of child laborers	不适用
强迫与强制劳动 Compelling and forced labor		
409-1	已发现具有严重强迫或强制劳动事件风险的运营点和供应商，以及有助于消除一切形式的强迫或强制劳动的措施 Operation points and suppliers found with risks of severe compelling or forced labor incidents and measures of compelling or forced labor conducive to eradicate all forms	不适用
当地社区 Local community		
413-2	对当地社区有实际或潜在重大负面影响的运营点，包括运营点位置和产生的重大负面影响 Operation points with practical or potential significant negative impacts for local communities, including the position of operation points and produced significant negative impacts	不适用
供应商评估 Supplier evaluation		
414-2	供应链产生的重大实际和潜在的负面社会影响，以及采取的措施 Significant practical and potential negative social impacts produced in supply chain and adopted measures a. 开展了社会影响评估的供应商数量 a. Number of suppliers to carry out social influence assessment b. 经确定具有实际和潜在重大负面社会影响的供应商数量及重大的负面影响 b. Number of suppliers with significant practical and potential negative social impacts and significant negative impacts after confirmation c. 经评估后同意改进的供应商百分比 c. Percentage of suppliers agreed to be improved after assessment d. 经评估后决定终止关系的供应商百分比 d. Percentage of suppliers deciding to terminate relationship after assessment	P61-62
客户隐私权 Clients' privacy right		
418-1	经证实的侵犯客户隐私权及遗失客户资料的投诉总数 Total number of complaints of infringement in clients' privacy rights and losing client data verified	不适用

明阳智慧能源集团股份有限公司 2018 年度社会责任报告

独立鉴证报告

安永华明（2019）专字第 60827367_A01 号

我们受明阳智慧能源集团股份有限公司（以下简称“明阳智能”）董事会的委托，对明阳智能编制的自 2018 年 1 月 1 日起至 2018 年 12 月 31 日止的 2018 年度社会责任报告（以下简称“社会责任报告”）实施《AA1000 原则标准（2008）》原则遵循审验。

一、可能的使用者

该鉴证报告的使用者包括明阳智能公司管理层及利益相关方。

二、董事会的责任

明阳智能的董事会对社会 Responsibility 报告中的报告编制原则及报告中的内容与数据的编制与列报负责。设计、实施和维护与社会 Responsibility 报告编制相关的内部控制是明阳智能管理层的责任。

三、鉴证服务提供方的责任

我们的责任是根据明阳智能管理层的要求，评估组织进行社会责任报告编制遵循三项 AA1000 原则（包容性、重大性及回应性）的性质和程度，提供判断明阳智能遵循 AA1000 原则进行社会责任报告编制的性质和程度的调查结果和结论。

根据双方的业务约定条款，本鉴证报告仅为明阳智能董事会编制。我们的工作仅限于就上述约定事项向明阳智能董事会进行汇报，而非其他目的。我们不会就我们所实施的工作、出具的报告或做出的结论对除明阳智能董事会以外的任何第三方承担任何责任。

四、鉴证标准

我们采用《AA1000 审验标准（2008）》类型 1 中度审验等级评估明阳智能进行社会责任报告编制遵循三项 AA1000 原则的性质和程度，包括：

- 包容性原则：社会责任报告编制中体现审验对象与利益相关方一道对可持续发展作出负责任和战略性的回应
- 实质性原则：社会责任报告编制中体现特定问题对组织及其利益相关方的相关性和重要性的判断。
- 回应性原则：审验对象通过社会责任报告编制对影响其可持续发展绩效的利益相关方议题作出回应，并依据社会责任报告展现将通过决策、行动和绩效以及加强与利益相关方沟通等方式付诸实践。

五、鉴证工作

我们按照《AA1000 审验标准（2008）》的要求计划和执行鉴证工作。为了得出鉴证结论，我们执行了下列工作：

- 通过对明阳智能管理人员就明阳智能于社会责任报告编制中对包容性、实质性和回应性原则的应用进行询问和访谈，获得了明阳智能在编制社会责任报告过程中对《AA1000 原则标准（2008）》原则应用的理解
- 审验明阳智能在社会责任报告编制过程中，相关的利益相关方沟通过程及实质性分析结果并获取相关证据
- 评估明阳智能社会责任报告在《AA1000 原则标准（2008）》的包容性、实质性、回应性三个维度的符合程度



六、鉴证的局限性

我们的鉴证工作不包括：

- 鉴证报告中信息或资料（含财务信息和资料）的准确性及公允性；
- 鉴证明阳智能管理层的预测性声明；及
- 鉴证历史比较资料。

七、结论

基于本鉴证报告所述的范围、实施的程序和上述局限性，我们的鉴证结论如下：

我们没有注意到任何事项使我们相信 2018 年度社会责任报告的编制存在重大错报。

包容性

明阳智能识别了关键的利益相关方，并了解了利益相关方的需求及关注重点。此外，明阳智能在确定发展战略、制定发展规划、制定业务政策和日常商业运营中，考虑了利益相关方的期望和对利益相关方的影响。我们建议，明阳智能进一步建立和完善企业可持续发展管理体系，强化利益相关方识别流程。

实质性

对于在社会责任报告披露的信息，明阳智能考虑了利益相关方的需求和关注重点、财务绩效、行业特点、政策要求及社会影响等因素，定性和定量的披露了明阳智能可持续发展工作的关键议题和关键绩效。我们建议，明阳智能可考虑进一步制定相关制度，确定标准和流程以指导管理层和员工识别、评估、报告与社会责任报告相关的对于明阳智能利益相关方的重要事项，并对其进行优先排序。

回应性

明阳智能结合业务的特点制定相关的政策，目标和人物，完善治理结构、管理体系和流程，建立了多元化的沟通渠道，加强与利益相关方的交流沟通，对利益相关方的主要需求做出了回应。我们建议，明阳智能进一步明确和完善对利益相关方作出回应的职责和流程。

八、独立性说明

我们遵循了安永全球独立性政策。安永全球独立性政策是根据国际会计师联合会的要求而制定的，我们相信没有任何事项或其他项目服务的提供会损害到我们社会责任报告鉴证服务工作的独立性。

九、鉴证团队

本次鉴证服务工作人员包括来自我们社会责任报告鉴证服务领域的专家，他们在国内或国际上从事类似的鉴证服务，我们的鉴证团队满足了本项目要求的工作能力和工作经验。

安永华明会计师事务所（特殊普通合伙）
安永华明会计师事务所（特殊普通合伙）



中国 北京

2019 年 4 月 23 日



Social Responsibility Report of Mingyang Smart Energy Group Co., Ltd. in 2018

Independent Certification Report

A.Y.H.M. (2019) Z.Z. No. 6082367_A01

We are entrusted by the board of directors of Mingyang Smart Energy Group Co., Ltd. (hereinafter referred to as "Mingyang Smart Energy") to carry out the principle of AA1000 Principle Standard (2008) in the annual social responsibility report of 2018 (hereinafter referred to as "Social Responsibility Report") compiled by Mingyang Smart from January 1, 2018 to December 31, 2018.

1. Possible Users

The users of the certification report may include the management and stakeholders of Mingyang Smart Energy.

2. Liability of the Board of Directors

The board of directors of Mingyang Smart Energy shall be responsible for the principles of report compilation and the content and data compilation and presentation of the report. Mingyang Smart Energy Management shall be responsible for the design, implementation and maintenance of the internal control related to the preparation of social responsibility reports.

3. Liability of the Provider of Assurance Services

The Provider of Assurance Services shall be responsible for the assessment of the nature and extent of the three AA1000 principles (inclusiveness, materiality and responsiveness) in compiling social responsibility reports on the basis of the requirements of Mingyang Smart Energy Management. It shall also be responsible for providing the findings and conclusions to judge the nature and extent of social responsibility reports compiled by Mingyang Intelligent in accordance with AA1000 principles.

According to the terms of business agreement between the two parties, this certification report shall only be prepared by Mingyang Smart Energy Board of Directors. Our work is limited to reporting to Mingyang Smart Energy Board of Directors on the aforementioned agreed matters, not for other purposes. The Provider of Assurance Services shall not assume any liability to any third party except Mingyang Smart Energy Board of Directors for the work that the Provider of Assurance Services has done, the reports have issued or the conclusions have reached.

4. Assurance Standard

The Provider of Assurance Services shall evaluate the nature and extent of Mingyang Smart Energy's social responsibility report compilation following three AA1000 principles by using the intermediate level of type 1 of AA1000 Test Standard (2008). The principles include:

- Inclusive Principle: The preparation of social responsibility report shall reflect the liable and strategic response of the auditees and stakeholders to sustainable development.
- Substantive Principle: The preparation of social responsibility reports shall reflect the judgment of relevance and importance of specific issues to organizations and their stakeholders.
- Responsive Principle: The auditees shall respond to stakeholder issues that affect their sustainable development performance through the preparation of social responsibility reports. And the auditees shall put into practice through decision-making, action and performance, as well as strengthening communication with stakeholders in accordance with the social responsibility reports.

5. Assurance

We plan and implement the Assurance work in accordance with the requirements of AA1000 Audit Standard (2008). In order to draw conclusions, we have carried out the following tasks:

- We have obtained the understanding of Smart Energy on the application of the principles of AA1000 Principle Standard (2008) in the compilation of social responsibility reports by inquiring and interviewing Smart Energy Managers on the application of inclusive, substantive and responsive principles in the compilation of social responsibility reports
- We have examined the commutation of relevant stakeholders in the compiling process of Mingyang Smart Energy's social responsibility report and obtained relevant evidence and substantive analysis results.
- We have evaluated the conformity of Mingyang Smart Energy Social Responsibility Report in the three dimensions of inclusiveness, substance and responsiveness of AA1000 Principle Standard (2008).

6. Limitations on Our Scopes

Our Assurance work shall not include:

- To verify the accuracy and fairness of information or information (including financial information and information) in the report;
- The predictive statements of Mingyang Smart Energy Management; and
- Verify historical comparative data.

7. Conclusion

Based on the scope, procedures and limitations described in this Assurance report, our conclusions shall be as follows:

We have not noticed anything that shall convince us that there are major misstatements in the preparation of the social responsibility report for 2018.

Inclusiveness

Mingyang Smart Energy have identified key stakeholders, and understood the needs and concerns of stakeholders. In addition, Mingyang Smart Energy shall take into account the expectations of stakeholders and their impact on stakeholders in determining development strategies, formulating development plans, business policies and daily business operations. We suggest that Mingyang Smart Energy further establishes and improves the sustainable development management system of enterprises and strengthens the identification process of stakeholders.

Substantiality

For the information disclosed in the social responsibility report, Mingyang Smart Energy has taken into account the needs and focus of stakeholders, financial performance, industry characteristics, policy requirements and social impact. Mingyang Smart Energy has qualitatively and quantitatively disclosed the key issues and performance of its Sustainable Development. We suggest that Mingyang Intelligence considers further developing relevant systems, defining standards and processes to guide management and employees in identifying, evaluating, reporting on important issues related to social responsibility reporting for Mingyang Smart Energy stakeholders. And we also suggest that Mingyang Smart Energy gives priority to such stakeholders.

Responsiveness

Mingyang Smart Energy shall combine business characteristics to formulate relevant policies, objectives and people, perfect governance structure, management sys-

tem and process. Mingyang Smart Energy shall establish diversified communication channels, strengthen communication with stakeholders, and respond to the main needs of stakeholders. We suggest that Mingyang Smart Energy further clarifies and improves its responsibilities and procedures for responding to stakeholders.

8. Our Independence

We are in compliance with the Ernst & Young Global Independence Policy which was designed to comply with the requirements of the IFAC Codes of Ethics for Professional Accountants (the IFAC Code). We believe that there were no events or prohibited services provided which could impair our independence.

9. Our Assurance Team

Our assurance team has been drawn from our Sustainability assurance service network, which undertakes similar engagements to this with a number of domestic or international businesses. Our assurance team has met the requirements of competence and work experience of this engagement.

Ernst & Young Accounting Firm (Special General Partnership)
Beijing China
April 23, 2019

反馈意见表

Feedback Form

尊敬的读者：

您好！非常感谢您阅读《明阳智慧能源集团股份公司2018年度社会责任报告》。我们非常关注您对报告的意见，请您对本报告提出意见和建议并反馈给我们，以便我们对报告持续改进。

Distinguished readers:

Hello! Thank you very much for reading 2018 Social Responsibility Report of Mingyang Smart Energy Group Limited. We are very concerned about your opinions for the report, please put forward opinions and suggestions for the report and feed back to us so that we can continuously improve the report.

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选择性问题：（请在相应的位置选择打“√”）

Selectivity questions: (please tick at the corresponding position)

1. 相对于明阳智能，你的身份是：

1. For Mingyang Smart Energy, your identity is:

政府 Government

员工 Employee

社会公众 The public

投资者 Investor

客户 Client

合作伙伴 Partner

同行业者 Competitors

2. 您对报告的总体印象是：

2. Your impression as a whole for the report is:

很好 Very good

一般 So-so

很差 Very poor

较好 Good

较差 Poor

3. 您认为报告中所披露的社会责任信息质量：

3. You think that the quality of social responsibility information disclosed in the report is:

- 很高 Very high 一般 So-so 很低 Very low
 较高 High 较低 Low

4. 您认为报告结构：

4. You think the report structure is:

- 很合理 Very reasonable 一般 So-so 很差 Very poor
 较合理 Reasonable 较差 Poor

5. 您认为报告版式设计和表现形式：

5. You think that the format design and pattern of manifestation of the report is:

- 很好 Very good 一般 So-so 很差 Very poor
 较好 Good 较差 Poor

开放性问题：

Open-ended questions:

您对《明阳智慧能源集团股份有限公司 2018 年度社会责任报告》的宝贵意见与建议，欢迎提出：
If you have valuable opinions and suggestions for 2018 Social Responsibility Report of Mingyang Smart Energy Group Limited, welcome to put forward:



MINGYANG SMART ENERGY

明阳智能

地蕴天成·能动无限

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