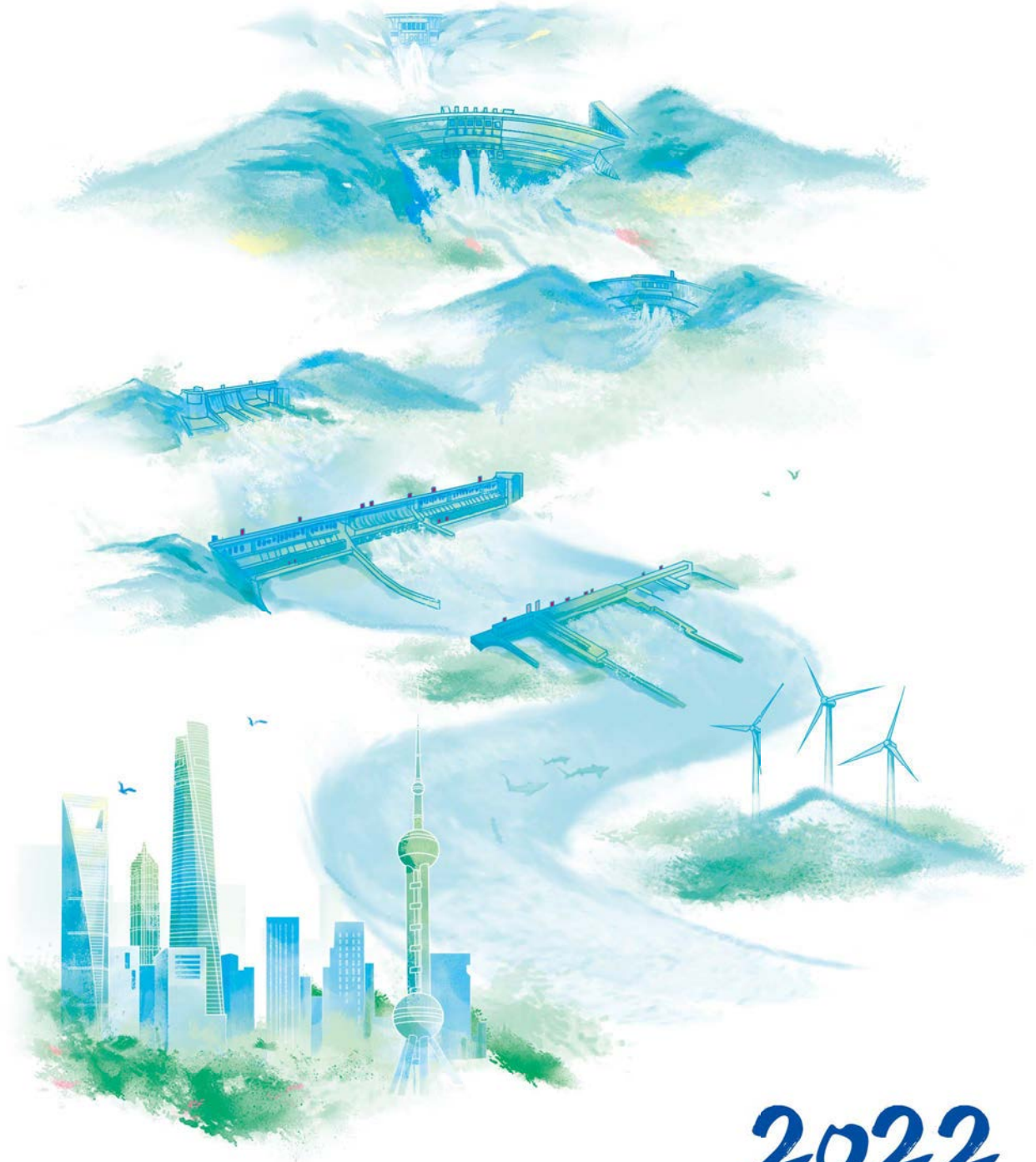




中国三峡
China Three Gorges Corporation



2022

Sustainability Report

Empowering a greener world

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Message from the Chairman



雷鸣山

Lei Mingshan

Board Chairman Of China Three Gorges Corporation



Empowering a greener world through two-tracked development

2022 was a year of great importance for CTG. Despite formidable challenges, such as record low water levels in the Yangtze River and unprecedented energy supply pressure, our determination and commitment guaranteed the successful completion of national pillar projects, the stable energy supply, the conservation of the Yangtze River, and independent technological innovation.

Born to be green – reinforcing our commitment to green development. After nearly three decades of high-quality development, CTG has secured an ever-expanding scale and an increasingly diverse business portfolio and stood more prepared, more ready, and more competent to shoulder greater responsibilities. Our two-tracked development approach, featuring clean energy and conservation of the Yangtze River, is seamlessly congruent with the concept of harmonious coexistence between human and nature. This alignment comes with a new mission and offers new opportunities. As we chart our course forward, we are committed to providing more green energy to fuel the realization of Chinese path to modernization, delivering quality ecological products to empower a better life for the people, and making a greater contribution to realizing the modernization of harmony between man and nature through our two-tracked development approach.

Improving green capabilities – boosting our ability to secure green energy supply. As a central state-owned enterprise (SOE), we dedicate to fulfilling our economic and social responsibilities, and regard the secure, stable, and reliable supply of energy as the bedrock of our establishment, the foundation for our growth, and our

essential duty. CTG has consistently remained on the primary track of clean energy, tirelessly bolstered our clean energy capabilities and spearheaded a new energy system to fuel the realization of the Chinese path to modernization with green electricity. Leveraging our strengths in hydropower, we have completed the world's largest clean energy corridor, quickened the pace in exploring innovative ways to harness hydropower stations' value of flexible regulation capabilities, and cemented our leading position in the global hydropower industry. We work to develop and strengthen our renewable energy business. Centering on the construction of onshore renewable energy bases and large-scale development of offshore wind farm clusters, we strive to solidify our status as a stellar provider of wind, solar, and offshore power projects. We are proactive in laying out scientific research plan and tackling key technological problems in emerging sectors such as hydrogen energy and novel energy storage, so as to capture the strategic high ground of relevant industries. We steadily advance the progress in clean energy development along the Belt and Road, fostering steady expansion of our international operations. By the end of 2022, our installed renewable energy capacity has crossed the milestone of 120 GW, and our annual renewable energy generation capacity has surpassed 360 TWh, a feat that puts us at the first place in the world.

Pursuing green horizons – offering more green products. The harmonious coexistence between man and nature underpins people's aspirations for a better life. It is our mission to provide the public with a wider array of high-quality and eco-friendly products. We promote the well-coordinated environmental conservation of

the Yangtze River by reproducing the "smart urban water manager" model, implementing the pipeline and network management, and ensuring our skies blue, waters clear, and lands clean. We ramp up efforts to build national-level scientific research platforms dedicated to ecological protection at a faster pace and delve deeper into the research concerning the preservation of the Yangtze River's rare wildlife. We also take the lead in promoting comprehensive and visionary research on the harmonious coexistence of man and nature within the Yangtze River Basin. We actively seek mechanisms that unlock the value of ecological products; by smoothing the two-way conversion channels between natural beauty and natural assets, we ensure that people can partake in the beauty of nature, the splendor of life, and the progress of development amidst the lucid waters and lush mountains.

Striving for flourishing futures – jointly creating a green and prosperous life. Going green is integral to sustainable development and reflects people's aspirations for a better life. CTG has set an example in fulfilling our social responsibilities and satisfy people's desire for a better life through our undertaking of clean energy development and environmental conservation, striving to generate the highest comprehensive economic, social, and environmental value. We operate the world's largest clean energy corridor along the Yangtze River with high standard, and maximize its multifaceted benefits in flood control, power generation, navigation improvement, and comprehensive utilization of water resources. Leveraging our businesses strengths in clean energy and ecological conservation, we vigorously implement poverty alleviation initiatives in the

targeted areas. We pioneer new models of assistance through industrial development, such as "ecology+" and "new energy+", and help the targeted regions transform their advantageous resources into development assets. In 2022, CTG established a dedicated Corporation Social Responsibilities (CSR) office at the headquarters, responsible for the CSR fulfillment, rural vitalization and aid for Tibet, Xinjiang, and Qinghai. As the first central SOE to establish a CSR department at the headquarters, we honor our commitment by delivering social benefits.

Looking into our prime fourth decade, we take strides with renewed vigor and determination. 2023 marks the 30th anniversary of CTG's establishment. We have embarked on an expedition full of glory and dreams. The new era rewards those with ambition, and constant efforts are always illuminated by the starlight. On our new journey in the new era, we will keep striving for clean energy and Yangtze River conservation, performing our "six roles", speeding up building ourselves into a world-class enterprise, and making greater contributions to promoting the harmonious coexistence between man and nature.

An Interview with the President



Han Jun
Board Director & President of China Three Gorges Corporation

Q How does the completion of the world's largest clean energy corridor contribute to the sustainable development of China and even the global economy?

A All generating units at Baihetan Hydropower Station were put into operation on December 20, 2022, marking the completion of the world's largest clean energy corridor spanning over 1,800 kilometers. This feat bolstered China's standing as a global leader in hydropower and will become a robust pillar for the development of a new energy system. It not only safeguards our national energy security but also steers us steadily towards China's carbon peaking and carbon neutrality goals. Furthermore, it is of great significance to the flood control, shipping improvement, power generation, utilization of water resources and ecological safety within the Yangtze River Basin. The six cascade power stations along the corridor collectively have an impressive installed capacity of 71.695 GW, and will effectively relieve the energy shortage in Central and Eastern China as well as in provinces such as Sichuan, Yunnan, and Guangdong, playing a key role in the safe and stable operation of the power grid. The corridor generates around 300 TWh of electricity annually, saving approximately 90.45 million tons of standard coal and reducing CO₂ emissions by about 248 million tons each year. The unified and joint dispatching of powers generated by our six reservoirs and six dams maximizes the proceeds created by each hydropower station. This strategic dispatching system balances a wide range of objectives, from flood control and shipping to power generation, water replenishment, and ecological conservation, thus harnessing the regulatory potential of our reservoir and dam infrastructure.

Q CTG has taken a two-pronged development approach to forge a unique Chinese route of modern ecological conservation. Could you elaborate on the progresses made by CTG in terms of Yangtze River conservation in 2022?

A Originated from and rooted in the Yangtze River, CTG has a deep connection to the development of the Yangtze River Economic Belt. It is the new mission and responsibility, assigned to the CTG by the CPC Central Committee and the State Council, which will play a pivotal and leading role in well-coordinated environmental conservation of the Yangtze River. In 2022, we were unwavering in our commitment to this initiative, with a total investment of RMB 29.6 billion. We increased the daily sewage treatment capacity by 1.47 million cubic meters and extended the rain and sewage pipe network by 5,700 kilometers. We established the Yangtze River Pipe Network Company to improve the weak pipe network infrastructure in collaboration with local authorities as a principal investor of pipe network management efforts in the Yangtze River Basin. The "smart urban water manager" model was successfully launched in Lu'an. The Yixing and Lu'an novel sewage treatment plants were also completed and put into operation.

Q In December 2022, the second part of the 15th Meeting of the Conference of the Parties to the United Nations Convention on Biological Diversity (COP-15) was held in Montreal, Canada. What measures did CTG take to strengthen biodiversity conservation in response to the COP-15 initiative? And, what has been achieved?

A President Xi Jinping, during the Leaders' Summit of the 15th Meeting of the Conference of the Parties to the Convention on Biological Diversity, pointed out that China will continue to readjust its industrial structure and energy mix, vigorously develop renewable energy, and make faster progress in planning and developing large wind power and photovoltaic (PV) bases in sandy areas, rocky areas and deserts. In response to his call, CTG kickstarted China's first approved project in Gobi and other desert regions — a new energy base in the Kubuqi

Desert in central and northern Ordos, marking the initiation of a journey to convert desolate deserts into fertile oases that fuel renewable energy development. Meanwhile, CTG is intensifying our commitment to ecosystem conservation. We are unwavering in our mission to protect species and restore the ecological environment, upholding our pledge to both terrestrial and aquatic biodiversity conservation. We are scaling up our protection efforts for the Yangtze River's rare and endemic fish species, founding the Yangtze River Biodiversity Research Center. The center is devoted to the protection and technological study of over ten rare and endemic species, including the Chinese sturgeon. By conducting joint ecological dispatching experiments with a cluster of cascade power stations along the main stream of the Yangtze River, we are continuously refining our full-lifecycle species protection system.

Q What key measures did CTG take to actively fulfill its corporate social responsibility in 2022? What results have been achieved?

A To better fulfill our social responsibilities and deeply implement the ESG philosophy, CTG has formed a CSR office by replacing the former Office of the Social Responsibility (Rural Vitalization) Leading Working Group, the first of its kind in a central SOE. This functional department at the headquarters manages and implements CSR initiatives, including rural vitalization as well as aid for Tibet, Xinjiang, and Qinghai. CTG has consistently taken the lead in CSR fulfillment, actively contributing to national strategies like poverty alleviation and rural vitalization. We have achieved "Good" result in assessment of targeted assistance from centrally owned entities for five years in a row. In 2022, CTG continued poverty alleviation policies and supervision, investing RMB 407 million in paired-up assistance for targeted counties to develop livable, industry-friendly, and beautiful villages. These efforts won us the 17th People's Corporate Social Responsibility Award for Rural Vitalization. We have maintained our aid for Xinjiang, Tibet, and Qinghai, taking on the new task of paired-up assistance for Dengqen County, Tibet. We have exempted more than 400 small businesses and individual industrial and commercial households from around RMB 50 million in rent. As we move forward, CTG will continue to safeguard the nation's core interests and fulfill our responsibilities, remaining acting as a model of social responsibility.

Q 2022 marked the conclusion of the three-year action plan for SOE reform. What has CTG achieved as it played an exemplary role in deepening the reform?

A 2022 was a year of diligent effort and marked the hard-won victory of the three-year action plan for SOE reform. We have established robust systems, implemented concrete measures to gain tangible results and made significant strides. We have resolutely integrated Party leadership into corporate governance, with a well-established, empowered, and fully-functional Board of Directors developed. We have conducted in-depth benchmarking with world-class management improvement, and established a comprehensive benchmarking system that encompasses "points, lines, and surfaces". To optimize and adjust the management mechanisms of regional institutions, we have deepened the restructuring and reform of our headquarters and Beijing-based institutions. A management mechanism for the pumped-storage hydroelectricity business spanning "pre-research, investment, construction, and operation" has been studied and developed after deliberation, to refine our investment management system, build a green expressway mechanism and develop a cross-regional, cross-project material sharing and reserve base. Moreover, we have achieved full coverage of tenure system and contractual management for all managerial staff and rated A-class once again in the performance assessment of key tasks in the three-year reform of central SOEs.

About CTG

Founded on September 27, 1993, China Three Gorges Corporation (hereinafter referred to as CTG), is headquartered in Wuhan, Hubei Province. The Corporation is among the first batch of pilot central SOEs, selected by the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC) for building world-class model enterprises. Strategic positioning of CTG: Actively serve the development of the Yangtze River Economic Belt and other major national programs; be a pivotal and leading player in the integration into the Yangtze River Economic Belt and the well-coordinated environmental conservation in the Yangtze River; be a safeguard for promoting regional sustainable development; take a lead in promoting the upgrade of the clean energy industry and in driving China's hydropower industry to "go global"; and continue deepening reform and pursue innovation-driven development to speed up the developing of CTG into an innovative world-class multinational clean energy enterprise with global competitiveness. Our business covers 31 provinces, autonomous regions and municipalities in China, with a global presence in over 40 countries and regions. We have become the world's largest hydropower developer and operator and a leading clean energy group in China. CTG will strive to implement our two-pronged approach for advancing clean energy development and the ecological conservation of the Yangtze River. During the 14th Five-Year Plan period, we will have basically accomplished our goal of becoming a world-class developer of clean energy and a leading company in environmental protection in China.

The world's largest hydropower development and operation enterprise
China's leading clean energy group



CTG's headquarters

125^{GW}
 Consolidated installed capacity in operation

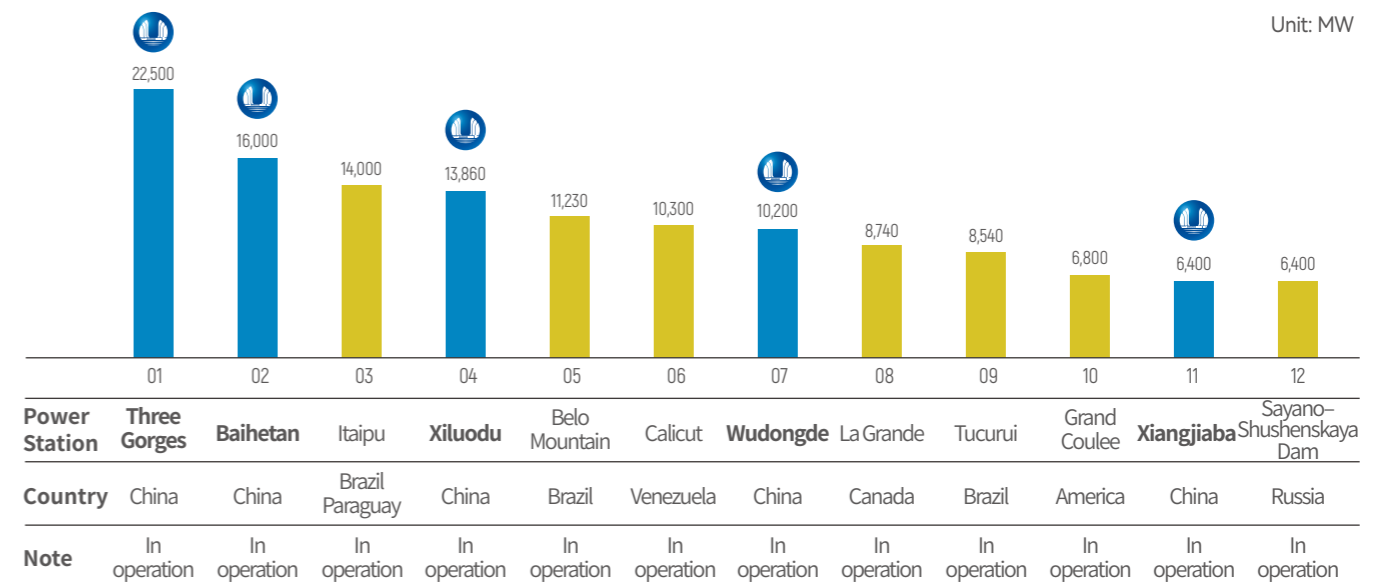
383.8^{TWh}
 Annual gross power generation

A-class enterprise
 Rating in the SASAC's annual performance appraisal of SOEs for 16 successive years

96.29%
 Proportion of installed capacity of clean energy

94.67%
 Proportion of electricity generated by clean energy

RMB 146.3 billion
 Revenue



5 of the top twelve hydropower stations in the world will be built, operated and managed by CTG.



Panoramic view of the Baihetan Hydropower Station

Core Corporate Culture

Our Mission

Harmonizing development with conservation for greater public wellbeing

Our Vision

Striving for clean energy and Yangtze River conservation and building a world-class enterprise

Our Values

Innovation-driven development for a carbon-neutrality and win-win future

Our Motto

Empowering a greener world

Strive to be a World-Class Enterprise

Build a world-class clean energy group and a leading ecological conservation enterprise in China by 2025

Implement "Two-Tracked Approach"

Advance clean energy development and Yangtze River conservation

Perform our "Six Roles"

A safeguard in advancing the development of the Yangtze River Economic Belt

A pivotal and leading player in well-coordinated environmental conservation of the Yangtze River

A leader in driving China's hydropower industry to "go global"

A key driver in promoting the upgrading of clean energy industry

A pioneer in deepening SOE reforms

A model in fulfilling social responsibilities



Board of Directors



Lei Mingshan, Board Chairman



Han Jun, Board Director



Li Fumin, Board Director



Wang Yilin, External Director



Xia Dawei, External Director



Qu Dazhuang, External Director



Mi Shuhua, External Director



He Guangbei, External Director



Hua Mei, Employee Director

Board members

Top Leadership



Lei Mingshan, Board Chairman



Han Jun, Board Director, President



Li Fumin, Board Director



Wang Liangyou, Executive Vice President



Chen Ruiwu, Head of Discipline Inspection Team



Zeng Yi, Chief Financial Officer (CFO)



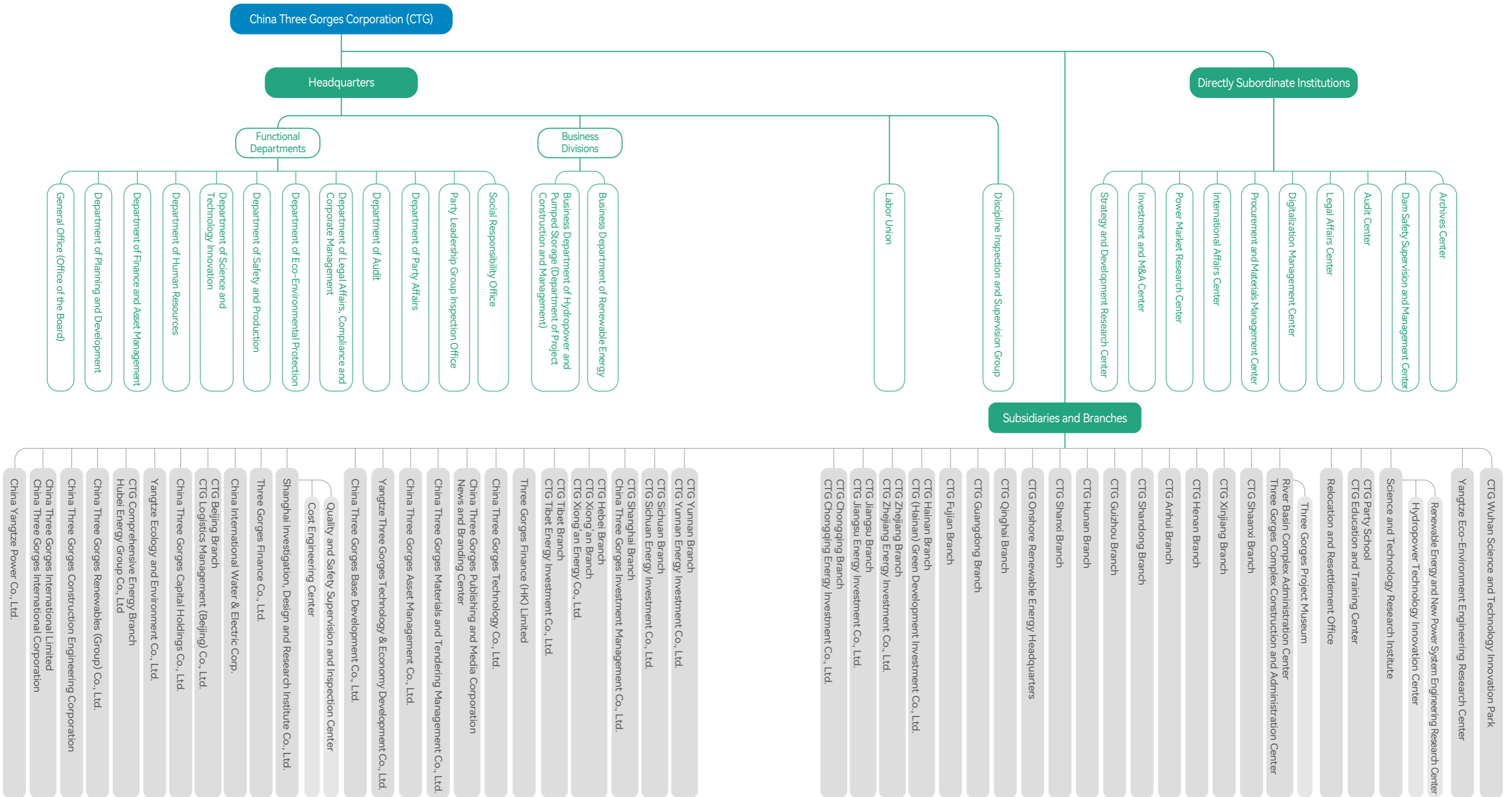
Lv Tingyan, Executive Vice President



Wang Wubin, Executive Vice President

Top Leadership

Organizational Structure



CSR Spotlight

Forging Ahead Determinedly with the Instructions in Mind and Composing a New Chapter of Our “Six Roles”

On April 9, 2018, the strategic development positioning of the “Six Roles” of CTG, personally outlined by President Xi Jinping, was officially issued as a joint document of the National Development and Reform Commission (NDRC) and the State-owned Assets Supervision and Administration Commission of the State Council (SASAC). Over the past five years, President Xi Jinping has continuously given important speeches and instructions for CTG’s reform and development. His high expectations have become an immense inspiration, propelling us to forge ahead. CTG people have kept President Xi Jinping’s directives in mind, ensuring his speeches and instructions are fully embodied in our work.

On April 9, 2018

The strategic development positioning of the “Six Roles” of CTG, personally outlined by President Xi Jinping, was officially issued as a joint document of the NDRC and the SASAC.

On April 24, 2018

President Xi Jinping inspected the Three Gorges Project, praising it as “one symbol, three examples”.

On April 26, 2018

At the symposium on advancing the development of the Yangtze River Economic Belt, President Xi pointed out that CTG should play its due role and actively participate in the ecological restoration and environmental protection efforts along the Yangtze River Economic Belt.

In 2019

China Yangtze Power Co., Ltd. (CYPC) acquired an 83.6% stake in Peru’s largest listed power company, Luz Del Sur, which was the largest overseas merger and acquisition undertaken by a Chinese-funded company that year.

By March 2020

All four of our targeted poverty alleviation counties had been lifted out of poverty.

On June 28, 2020

President Xi Jinping delivered instructions on the commissioning of the first batch of generating units at the Wudongde Hydropower Station on the Jinsha River.

On June 10, 2021

China Three Gorges Renewables (Group) Co., Ltd. (CTGR), the strategic implementer of CTG’s new energy business, was publicly listed on the main board of the Shanghai Stock Exchange. This represented the largest Initial Public Offering in the history of China’s power industry, positioning CTGR as the new energy company with the highest A-share market value at that time.

On June 28, 2021

President Xi Jinping sent a congratulatory letter on the commissioning of the first batch of generating units at the Baihetan Hydropower Station.

On December 31, 2022

President Xi Jinping lauded the Baihetan Hydropower Station in his New Year’s Message for 2023.

On June 30, 2022

All six generating units of the Changlongshan Pumped-Storage Power Station, the largest pumped-storage power station in East China, started operation.

On June 29, 2022

The Karot Hydropower Station in Pakistan, the first hydropower project invested and developed by CTG within the China-Pakistan Economic Corridor, fully commenced commercial operations.

On December 25, 2021

Our Shapa Offshore Wind Power Project in Yangjiang, Guangdong Province, China’s first gigawatt-level offshore wind farm, was fully connected to the grid.

On December 20, 2022

All generating units of the Baihetan Hydropower Station were commissioned, signifying the completion of the world’s largest clean energy corridor.

On December 28, 2018

Yangtze Ecology and Environment Co., Ltd. (YEEC) was officially formed in Wuhan, Hubei, to participate fully in the ecological and environmental restoration of the Yangtze Economic Belt.

On December 29, 2018

Our 500MW PV “Front Runner” project in Golmud, Qinghai was connected to the grid. It is the largest of its kind built at once in China and the first large-scale PV project with grid parity in China.

In 2019

Our artificial breeding program successfully bred approximately 143,000 fries of high-quality second-generation Chinese sturgeon, marking our highest yield in egg production and fry output.

By November 2020

The people assisted by CTG from Pumi, Jingpo, and Nu ethnic groups in Yunnan Province and Yi ethnic group in Liangshan Prefecture, Sichuan Province, were lifted out of poverty.

Figures about the “Six Roles”¹

A safeguard in advancing the development

of the Yangtze River Economic Belt

Flood control in the Yangtze River Basin

- Our six cascade reservoirs offer a total flood storage capacity of **37.6 billion** cubic meters, accounting for over **53%** of the total flood control capacity included in the coordinated dispatching reservoirs of the Yangtze River Basin in 2022.
- Over the years, the Three Gorges Project has successfully executed **66** flood interception operations, accumulating a total storage capacity of **208.8 billion** cubic meters, which is equivalent to the water volume of **eight** Poyang Lakes.²

Power supply

- The combined power generation from the six cascade hydropower stations has surpassed **3,010 TWh**, equating to the electricity consumption of **1.4 billion** Chinese individuals over a span of two years and three months.³
- We have successfully completed more than **40** major power supply tasks for the 100th anniversary celebration of the founding of the Communist Party of China, the 70th anniversary celebration of the Founding of the People’s Republic of China, and the 20th CPC National Congress, etc.

A green ecology

- We have conserved about **114** rare and endemic fish species in the Yangtze River and carried out artificial proliferation and release of over **21 million** rare fish.
- Throughout the years, a total of **1,392** rare and endemic plant species native to the Yangtze River Basin have been protected, with the successful cultivation of over **240,000** saplings of these specific species.

A “Golden Waterway”

- The ship locks at the Three Gorges Dam have facilitated the safe passage of over **1 million** vessels, contributing to a remarkable shipping throughput of more than **1.936 billion tons** of cargo.
- For **five** consecutive years, the annual freight volume traversing the Three Gorges ship locks has surpassed **100 million tons**; its average annual navigation rate outperforms the initial design index by nearly **10%**, equivalent to an additional **860 hours** of operation annually.

Drought alleviation and water replenishment

- Since its inception, the Three Gorges Project has supplied over **339.6 billion** cubic meters of water to the middle and lower reaches of the Yangtze River, a volume equivalent to that of **13** Poyang Lakes.⁴

A pivotal and leading player in well-coordinated

environmental conservation of the Yangtze River

- We have made investment of nearly RMB **100 billion**.
- Cumulatively, we have commissioned **716** sewage treatment plants with a sewage treatment capacity of **4.16 million tons per day**.
- We have also built and operated a pipe network of **19,000 kilometers**, equivalent to about **3 times** the length of the Yangtze River.⁵
- We have signed **149** strategic cooperation agreements with cities along the Yangtze River, and our Yangtze Ecology and Environmental Industry Alliance has successfully gathered **118** outstanding enterprises.
- Additionally, we have eradicated **26** black and odorous water bodies in **6** cities located along the Yangtze River.

A leader in driving China’s hydropower

industry to “go global”

- We have offered clean energy and infrastructure support to more than **40** countries and regions worldwide.
- Our controllable installed capacity overseas has surged by **48%** since 2017, reaching approximately **12.72 GW**.
- Our cumulative overseas power generation has amounted to **253 TWh**.

A key driver in promoting the upgrading

of clean energy industry

- Our total installed clean energy capacity surpasses **121 GW**.
- Our annual renewable energy generation reaches around **400 TWh**, the **top in the world**.
- We hold **17.82 GW** of wind power installed capacity.
- We have **15.75 GW** of PV installed capacity.

We launched our independently-developed **16MW ultra-large capacity offshore wind turbine, the first of the same scale in the world.**

We have built the world’s **first typhoon-resistant floating offshore wind turbine**, CTG Pioneer.

We have successfully commissioned **the world’s largest and Asia’s first offshore wind power VSC HVDC transmission project.**

We started the construction of **China’s first source-grid-load-storage integrated project** in Ulanqab, Inner Mongolia, the **largest project of its kind globally.**

A pioneer in deepening

SOE reforms

- Rated **Grade A** for three consecutive years in Party building performance assessment for central SOEs
- Rated **Grade A** for two consecutive years in the performance assessment of key tasks of the three-year reform of central SOEs
- Rated **Class A** for 16 consecutive years in business performance appraisal for the leaders of the central SOEs
- CTG and China Yangtze Power Co., Ltd. were recognized as **Model Enterprises for SOE Corporate Governance**

A model in fulfilling corporate

social responsibilities

- More than **2,800** CSR projects have been implemented over the years.
- A total of **250** counties (cities, districts) across the country have benefited from these projects.

Targeted assistance

(in Wushan County, Fengjie County, Wan’an County in Jiangxi Province, and Bairin Left Banner in Inner Mongolia)

- Implemented **452** targeted assistance projects
- Appointed **48** temporary officials and village-stationed secretaries
- Successfully helped **four** targeted counties realize their transition from the phase of poverty alleviation to the phase of rural vitalization with high quality
- Achieved **“Good”** rating in assessment of targeted assistance from centrally owned entities for **five** years in a row

Aid for Xinjiang, Tibet, and Qinghai

- Implemented **213** aiding projects
- Appointed **28** temporary and village-stationed officials

Assistance to resettled residents from reservoir areas

- Implemented **299** assistance projects in the Three Gorges Reservoir Area
- Implemented **600** assistance projects in the Jinsha River Reservoir Area

Assistance to four ethnic minorities in Sichuan and Yunnan

- Built **80** CTG New Villages
- Constructed and hardened **2,498 kilometers** of roads
- Built or renovated houses for **39,800 households**
- Benefitted over **270,000** residents directly and indirectly

Overseas CSR fulfillment

- Donated more than RMB **90 million** for charity causes in Asia, Europe, South America, and Africa.
- Facilitated the employment of approximately **5,500** people overseas.

Note 1: Unless otherwise specified, the relevant data in this section is based on the cumulative number over the years as of the end of June 2023.
 Note 2: This data is calculated based on the maximum volume of Poyang Lake (approximately 26 billion cubic meters).
 Note 3: This data is calculated based on the electricity consumption of 1336.6 TWh by urban and rural residents in China during the year 2022.
 Note 4: This data is calculated based on the maximum volume of Poyang Lake (approximately 26 billion cubic meters).
 Note 5: This data is calculated based on the length of the Yangtze River (6,363 kilometers) (data from the State Council).



Governance

Strengthening Value Creation

Panoramic view of the Three Gorges Dam

CSR Scroll

Improving Corporate Governance

Governance Mechanism

CTG continues to unify the strengthening of the Party leadership and the improvement of corporate governance. We have clarified the power-responsibility relationships among the Party Leadership Group, the Board of Directors, and the management in the decision-making of major operational and management matters, and work to put in place a legally defined corporate governance system with transparent powers and responsibilities, effective coordination, and balance between different functions. Giving full play to the Party Leadership Group's roles in setting the right direction, keeping in mind the big picture and ensuring the implementation of policies and principles, the Board of Directors' roles in deciding overall strategy, making decisions, and instituting proper risk management, and the management's roles in guiding business operations, supervising the implementation of major policies, and enhancing management capabilities, we ensure that the Party Leadership Group controls the overall direction, the Board of Directors makes scientific and rational decisions, and the management is responsible for efficient implementation.



Reinforcing Lean Management

Legal compliance

Improving the compliance system. We have revised our compliance management system, proposed implementation opinions to deepen law-based development, established a working mechanism for the Chief Compliance Officer and compliance specialists, and strengthened a well-established framework for the compliance management system. In addition, we continue to refine our overseas compliance management system, and formulate guidelines in key areas such as export control, economic sanctions, and overseas anti-commercial bribery. Through these measures, we are able to effectively prevent major overseas compliance risks.

Strengthening risk management. We have continuously refined our "1+N" risk management and internal control system, which is guided by the *Management Measures for Risk Management and Internal Control*, and supported by various specific operating norms. We have conducted thorough annual major risk assessments to ensure robust

tracking, monitoring and effective control of major risks, thus steadfastly safeguarding against the occurrence of major risks.

Optimizing internal audits. We have prepared the internal audit work plan during the 14th Five-Year Plan period, revised the internal audit system and corresponding documents, enhanced the data and functions of the internal audit information system, implemented the internal audit quality assessment, and promoted the continuous improvement of our internal audit and supervision system.

Strengthening problem rectification. We have performed specialized inspections to ensure that our subsidiaries operate in a law-abiding and compliant manner. Concentrating on key issues, we have steadfastly advanced problem rectifications through a "one enterprise, one progress sheet" approach, continually enhanced the standards of lawful and compliant operations and further reinforced the foundations for sustainable and high-quality development.

In 2022, CTG held the Legal Work Conference and the "Enhanced Compliance Management Year" Work Promotion Meeting, outlining key tasks related to law-based governance and compliance management. The Corporation convened a total of **three** meetings and training sessions to further strengthen compliance management efforts.



Main plant of the underground power station on the right bank of the Baihetan Hydropower Station

Intrinsic safety

Implementing the workplace safety accountability system.

We have established a workplace safety accountability checklist for all employees, from principal persons in charge to front-line staff, and ensured an accountability system that extends from top to bottom and edge to edge. We have employed the “dual director” system within safety committees at every level in line with the principle of “assigning equal responsibilities for environmental protection to Party officials and officials of the Corporation, and charging officials with environmental protection responsibilities in addition to their prescribed duties.”

Strengthening safety risk prevention and control. We have established the *Measures for the Hierarchical Control of Safety Risks and the Investigation and Management of Hidden Dangers*, improved the dual prevention mechanism, clarified the criteria for determining key risks and hidden dangers, and standardized procedures for the identification, determination and governance of these risks.

Improving emergency management and response capabilities. We have refined our emergency management system and working mechanism, organized the revision of four systems including the *Emergency Management System and the Management Measures for Contingency Plans for Emergencies*, conducted 18 key emergency drills, and issued and deployed flood and typhoon prevention plans.

Fostering workplace safety awareness. We have conducted education activities on workplace safety and safety skills competitions, formulated and issued 49 important measures across 18 categories to strengthen workplace safety, and held training programs on workplace safety and emergency management.

Ensuring safe and stable power supply. In 2022, we successfully fulfilled our energy supply tasks during critical periods, including meeting the peak demand in the winter and spring seasons, and securing power supply during the Beijing Winter Olympics and Winter Paralympic Games, the National “Two Sessions”, peak hours in summer, and the 20th CPC National Congress.

With a focus on significant risks and critical areas, CTG carried out **36** quality and safety supervisory inspections. These inspections encompassed **53** projects, covering pumped storage hydropower, renewable energy, ecological conservation and thermal power, etc. A total of **284** suggestions for ongoing enhancement were presented.

0

Workplace safety accidents in 2022

0

Major equipment accidents in 2022



Guangyang Island, Chongqing on the Upper Reaches of the Yangtze River

Responsible procurement

◆ **Swiftly advancing top-level design and development.** We have optimized our bidding, procurement, contract, and materials management systems, facilitated the revision of 13 systems including the *Regulations on Bidding and Procurement Management*, and continually enhanced our supply chain value procurement system in a both law-based and streamlined manner, with equal focus on the standardization and efficiency.

◆ **Optimizing risk prevention and control mechanisms.** We have conducted supply chain risk traceability analyses, established key materials and equipment lists for the whole CTG, proposed supply chain risk mitigation measures, and conducted risk studies and provided informed recommendations for major construction projects.

◆ **Driving digital platform development.** With a focus on high-quality cost reduction and efficiency improvement, we have tried to address pain points in traditional procurement, developed a smart supply chain management platform, and continuously expedited the digital transformation of our bidding, procurement, contract, and materials management.

◆ **Intensifying supply chain management supervision.** We have conducted bidding, procurement, and post-contract management evaluations, actively pushed special inspections and rectifications in the field of bidding and procurement, strengthened project subcontracting supervision, and carried out research on fine management of suppliers and credit evaluations.

18,726

Suppliers evaluated in 2022

100%

Economic contract fulfillment rate



Flood Discharge of the Three Gorges Dam

CSR Cases



Practice of safety hazard investigation training

Workplace safety theme activities for closing safety loopholes

To ensure responsibility fulfillment and in-depth investigation on identifying and mitigating potential risks, and maintain the safety of power generation facilities, the Electrical Maintenance Department's General Party Branch at the CYPC's Gezhoubu Power Plant carried out themed flood prevention activities focused on the identification and rectification of hidden hazards. During these activities, each Party branch undertook a comprehensive inspection of their respective production sites, employing both vertical and horizontal assessments. The primary focus was on identifying problems

such as non-compliance with workplace safety regulations, environmental protection standards, and fixed-site management. Problematic operation sites were promptly photographed and documented, and issues were collated based on the principle of "issues that can be solved by each Party branch shall be swiftly rectified, and those requiring broader coordination shall be solved by the General Party Branch after level-by-level reporting." This approach effectively helped in identifying and mitigating safety risks, thus consolidating the safety foundation.

Themed activities to promote youth awareness of workplace safety

To thoroughly implement President Xi Jinping's key directives on workplace safety, CTG's Communist Youth League Committee has organized activities under the theme of "Youth Taking the Lead in Workplace Safety". The activities included workplace safety education, safety hazard investigation, and safety skills competitions, all with a strong focus on clean energy and

the ecological protection of the Yangtze River – our main responsibilities and core business. Through initiatives like the "Youth Workplace Safety Model Post" and "CTG Youth Lecture Hall", we have guided our young employees to hone their skills and spearhead the development of a robust line of defense against workplace safety risks.

Comments

"We would like to express our sincere gratitude to CTG for your meticulous implementation of NEA's directives on power security and network security within the power industry. Your tireless efforts to safeguard power and network security during the Beijing 2022 Olympic and Paralympic Winter Games did not go unnoticed ... Your contributions to securing key network systems, websites, and critical information infrastructure during the Beijing 2022 Winter Olympic Games were truly commendable."

—Letter of thanks from the National Energy Administration on April 1, 2022

"CTG has achieved an impressive record of zero accident in electricity production over the past year. You help maintain a stable workplace safety environment and contribute to our national power security supervision and management efforts. We wish to extend our sincerest gratitude to you!"

—Letter of thanks from the National Energy Administration on December 29, 2022

R

eformation

Fostering Endogenous Growth Momentum



Fujian Three Gorges Offshore Wind Power International Industrial Park

CSR Scroll

Deepening Reform and Development

A modern corporate system

Establishing Boards of Directors at subsidiaries as required. We have established the Board of Directors in all of our 181 subsidiaries as required by law and in line with relevant regulations. This has included developing rules of procedure and regulations such as authorization management measures.

Building well-established, empowered, and fully-functional Boards of Directors. We have improved the operational standards of the boards of our subsidiaries, and reinforce their powers and

functions, while simultaneously enhancing our review and guidance processes of corporate governance systems for crucial subsidiaries.

Implementing the powers and functions of the Board of Directors. We have enabled 18 significant subsidiaries to create implementation plans for the functions and powers of their boards, establishing supporting regulations and executing the pivotal powers and roles of the boards.

An optimized institutional layout

Deepening institutional adjustment and reform. Institutional adjustments and reforms are deepened to restructure the headquarters and directly affiliated institutions in Beijing, reorganize the functional departments at the CTG headquarters, and innovate in a business division-based management model.

Optimizing the institutional management mechanism. We enhance business collaborations between regional and specialized companies. Meanwhile, we define the scope, decision-making mechanisms, and management and control requirements for new businesses and business forms. A management mechanism for the pumped-storage hydroelectricity business spanning “preparation, investment, construction, and transportation” has been studied and developed.

Optimizing the investment management mechanism. Investment management mechanisms are optimized to standardize resource acquisition, project development, construction, and merger and acquisition investments. A green expressway mechanism has been established to enhance the decision-making efficiency for major projects.

Optimizing the material procurement and reserve mechanism. The primary-level centralized procurement of major equipment for hydropower, wind power, PV, and thermal power businesses is nearly fully covered. We have built 30 material reserve bases that cross regional, project and organizational boundaries.

Market-oriented operation mechanisms

◆ **Promoting a tenure system and the contractual management of managerial staff.** This system has been fully implemented at the subsidiary level, with a revised assessment and evaluation mechanism, salary management system, and an “annual salary + tenure incentive” salary structure.

◆ **Improving the top-level design of professional manager management.** We have formulated the *Rules for the Management of Professional Managers (Trial)*, establishing standards for the selection, employment, and management of professional managers. We are scaling up efforts in the market-oriented selection and recruitment of professional managers.

◆ **Exploring more effective mechanisms for selecting and employing talents.** We have implemented a policy of “competing for posts of all management positions” among all permanent staff at the headquarters, intensifying market-oriented talent selection and recruitment.

◆ **Improving the differentiated salary distribution mechanism.** We have constantly optimized the mechanism for determining the total salary of subsidiaries and the salary distribution system of management staff. Major special rewards have been set up in the name of CTG. To establish medium- and long-term incentive mechanisms, we are implementing job dividend incentives for science and technology enterprises and equity incentive plans for listed companies.

A-class

For two consecutive years in 2021 and 2022 in the performance assessment of key tasks of the three-year reform of central SOEs

100%

Coverage of tenure system and contractual management implemented for managerial staff

Strengthening Technological Innovation

Innovation platform development

Building national sci-tech innovation platforms. We are strengthening the construction of the Yangtze Eco-Environment Engineering Research Center. We have collaborated with Hohai University in the high-quality operation of the National Engineering Research Center of Water Resources Efficient Utilization and Engineering Safety, and participated in the restructuring of the State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology.

Developing provincial and ministerial sci-tech innovation platforms. We are also promoting the development of provincial and ministerial science and technology innovation platforms, such as the State Environmental Protection Key Laboratory of Source Apportionment and Control of Aquatic Pollution, and the Hubei Intelligent Hydropower Technology Innovation Center. We have been granted permission to jointly build the Qinghai Provincial Key Laboratory for Compressed Air Energy Storage and Engineering Research Center of the Ministry of Education for Offshore Windpower Technology.

Promoting co-construction of university-enterprise sci-tech innovation platforms. In collaboration with

universities, we are advancing the establishment of the Wind Wave Joint Deep-water Laboratory with Dalian University of Technology and the Water, Wind, and PV Multi-energy Complementary Joint Laboratory with Wuhan University.

Promoting the construction of independent sci-tech innovation platforms. We are also promoting the development of independent scientific and technological innovation platforms like the Intelligent Hydropower Technology Innovation Center and the Renewable Energy and New Power System Engineering Research Center. We have established a new academician workstation for the CTG and a postdoctoral research workstation at CYPC.

Building an industry sci-tech innovation consortium. We have established the Offshore Wind Power Industry Chain Cooperation Organization, the Hubei Intelligent Integrated Energy Industry Technology Innovation Consortium, the Innovation Consortium for Hydropower Turbine Development and Application, and the Urban Pipe Network Innovation Consortium for the Well-Coordinated Environmental Conservation of the Yangtze River.



2
National sci-tech innovation platforms

15
Provincial and ministerial sci-tech innovation platforms

13
CTG's independent sci-tech innovation platforms

8
University-enterprise joint sci-tech innovation platforms

World's first new-generation offshore wind farm installation platform "Baihetan"

Scientific and technological breakthroughs



Strengthening top-level design

We have developed a scheme for scientific and technological innovation during the 14th Five-Year Plan period, restructured our all-round matrix system for technological innovation. In 2022, we completed the formulation and revision of 13 systems.

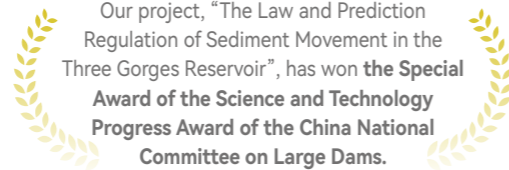


Boosting financial resources

In partnership with the Department of Science and Technology of Hubei Province and CYPC, we have co-founded the CTG Joint Fund for Innovation and Development. Moreover, we continue to promote the “Joint Fund for Yangtze River Water Science Research”, a project co-established by CTG, the National Natural Science Foundation of China, and the Ministry of Water Resources.



We won the title of “**Model Central SOE for Outstanding Contributions to Scientific and Technological Innovation**” from 2019 to 2021.



Our project, “The Law and Prediction Regulation of Sediment Movement in the Three Gorges Reservoir”, has won the **Special Award of the Science and Technology Progress Award of the China National Committee on Large Dams**.

2

Participated in the preparation and release of international standard

6

Participated in the preparation and release of national standards

Innovative technological outcomes

Aligning with national strategies, we have deepened our reform and innovation of the scientific and technological systems and mechanisms. Anchoring on research for core technologies in clean energy and ecological protection, we continue to increase R&D investment. This has led to several sci-tech achievements such as the first (set of) major technical equipment in China.

The world’s first 16MW ultra-large capacity offshore wind turbine successfully rolled off production line

The world’s first new-generation 2,000-ton offshore wind power installation platform, named “Baihetan” was delivered for use.

The source-grid-load-storage experimental base in Ulanqab which breaks multiple records in China was put into operation.

The Phase I project of the zero-carbon data center, the first one in China, was put into operation.

The first domestic smart water dispatching system with full business-form coverage, comprehensive data monitoring, and full remote control was developed independently by CTG.

China’s first high-performance deep-sea vessel specially designed for the transportation and installation of wind farm infrastructure, named, “Wudongde”, was delivered for use.

2

International awards

53

Provincial, ministerial and industrial awards for scientific and technological progress

Facilitating Digital Transformation

Enhancing business quality and efficiency through in-depth empowerment of digital technologies

- ◆ We pioneer the digitization of engineering construction, and have successfully established multiple online management platforms.
- ◆ We have promoted the intelligent power generation, to enhance operational efficiency, and reduce operation and maintenance costs at our power stations.
- ◆ We have independently developed China’s first smart urban water dispatching platform with full business-form coverage, comprehensive data monitoring, and complete remote control. This marks a significant stride in merging digital technology with water services.

Promoting in-depth integration of management systems and enhancing governance effectiveness

- ◆ We are developing intelligent Board of Directors operation management and evaluation systems, along with ERP for international business.
- ◆ Efforts have been made to develop and upgrade system platforms such as human resources, financial sharing, and smart supply chain management.
- ◆ We have achieved full coverage of digital infrastructure including networks at our branches and subsidiaries. The CTG’s private cloud platform has been put into use. Our integrated office systems, such as mobile portals and digital business travel platform, continue to evolve.

Unlocking data resource barriers to maximize data value

- ◆ We have broadened the scope of data acquisition, realizing real-time and periodic acquisition and unified storage of both IT and OT data.
- ◆ We have improved our data asset management mechanism, issued the *Data Asset Management Measures* and other regulations, and substantially established a robust data business system.
- ◆ By leveraging data mining and sharing, we are now able to monitor, analyze, and display CTG’s production and operation information in a holistic manner.

Building safety barriers for the pillars of the nation

- ◆ We have fulfilled the task of guaranteeing network security during critical time periods in 2022.
- ◆ We have fully implemented the requirements of leveled information security protection and critical information infrastructure protection. Continuous network security risk assessments, routine network security monitoring, and optimized technical systems for safeguarding network security have strengthened our cybersecurity emergency response capabilities. All these measures contributed to zero major network security incident in 2022.

Focusing on innovative practices to boost tech-driven development

- ◆ We are progressing with the adaptive replacement of various system infrastructures, and the phase I of the industrial control system upgrading project at the Three Gorges Complex has made a significant breakthrough.
- ◆ We made headway in the application of the Beidou Navigation Satellite System (BDS), issued a special plan and action plan for BDS, and worked to initiate a time service alternative based on BDS.
- ◆ The construction of the digital twin system for the Three Gorges Project is also underway, using big data and BIM to integrate monitoring data, build a data baseboard, and develop model applications.

CSR Cases



Static balance welding with weight adjustment for the machining of gigawatt-level generating unit runners at the Baihetan Hydropower Station

40+
Projects that have promoted and applied their research outcomes

28,000+ km
Asset data acquired for pipe networks

Pioneering digital research project on Yangtze River conservation delivers initial result

CTG's first digital scientific research endeavor dedicated to the well-coordinated environmental conservation of the Yangtze River, "Data Management and Database Construction for Pipelines of the Yangtze River Conservation Project", has successfully passed the acceptance inspection, receiving high praise from the reviewing experts. The achievements of the project are currently being promoted and applied in over 40 projects in areas such as the upper reaches of the Yangtze River, Hubei, Hunan, Jiangxi, Anhui, and the Yangtze River Delta. Having obtained the asset data of more than 28,000 kilometers of pipeline, the project has been instrumental in resolving the longstanding issue of unclear urban water assets. This project dismantles data silos, identifies data imperfections, and achieves data collaboration and sharing through a unified platform. It lays the data groundwork necessary for enhancing the operation and maintenance of the urban water asset infrastructure, refining operations, and addressing challenges in pipe network management. Furthermore, it provides best practices for data governance and intelligent development within the water industry.



Lu'an intelligent urban water dispatching platform

Ulanqab's "source-grid-load-storage" experimental base sets multiple records in China

The CTG source-grid-load-storage technology R&D experimental base at Ulanqab has set many records in China and in the whole industry worldwide. The "source-grid-load-storage" integrated power router demonstration project houses the largest power router in China, effectively facilitating the large-scale development of new energy sources and energy storage applications. The large-scale comprehensive simulation and experiment platform for new energy and energy storage is currently China's most extensive and diverse dynamic simulation platform for energy storage systems. It can provide a comprehensive simulation and

panoramic view of large-scale new energy and energy storage systems, realizing observation, measurement, and control of the systems. The key technologies and engineering application projects of MWh-level solid-state lithium-ion battery energy storage have realized the world's first demonstration application of energy-storage solid-state lithium-ion batteries. This development offers new solutions to issues such as the low comprehensive efficiency of the new power system and the insufficient complementarity between various power sources.

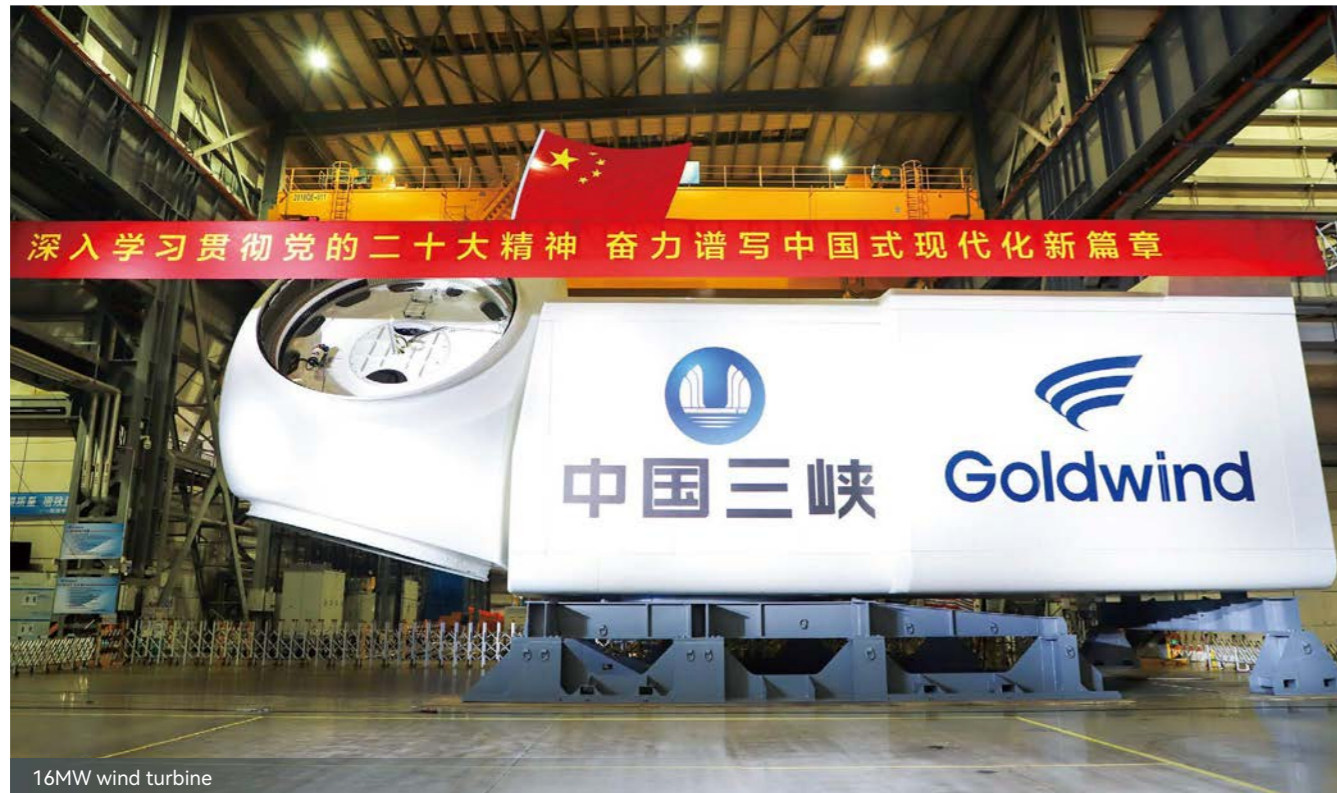


CTG Modern Energy Innovation Demonstration Park, Ulanqab, Inner Mongolia

the World's first ultra-large 16MW offshore wind turbine unveiled

On November 23, 2022, the 16MW "Shuaxian" offshore wind turbine unit jointly developed by CTG and Goldwind Sci & Tech Co., Ltd. rolled off production line in Fujian Three Gorges Offshore Wind Power International Industrial Park, and was listed in the 10 Pillars of the Nation in 2022 on December 30. As the wind turbine with the largest standalone capacity, the

largest impeller diameter, and the lightest weight per MW of capacity by far worldwide, this fully homemade wind turbine represents a monumental leap for China's wind power equipment industry – from "following", to "running alongside", to "leading" – setting a new global benchmark for offshore wind power equipment.



16MW wind turbine

Phase I of China's first large-scale zero-carbon data center commences its operation

On March 29, 2022, the inaugural phase of the CTG Dongyuemiao Data Center construction project – China's first large-scale zero-carbon data center – was fully completed and began its operations. The CTG Dongyuemiao Data Center is a major project to implement China's carbon peaking and carbon neutrality strategy, to actively participate in the national strategic project of "channeling computing resources from the eastern areas to the less developed western regions", and to robustly propel the digital transformation during the 14th Five-Year Plan period. The annual electricity consumption of the project's first phase is expected to exceed 200 GWh, all of which furnished by clean energy.



Stellar performances in the "Double-Hundred Action" and "Demonstrative Sci-tech Reform Enterprises" assessments for two consecutive years

CTG has been earnestly implementing President Xi Jinping's crucial directives on SOE reform and Party building. Our efforts to amplify our three-year action plan for the SOE reform have resulted in a cohort of front-line reform pacesetters with scientific and well-established governance structure, flexible and efficient operation mechanisms, strong and effective Party leadership, and significantly improved innovation capabilities and market competitiveness. In SASAC's annual assessments of enterprises included in the "Double-Hundred Action" and "Demonstrative Sci-tech Reform Enterprises", CTG has been recognized for outstanding performance for two consecutive years.

Comments

"The CTG Dongyuemiao Big Data Center, one of the pivotal data transmission and sharing hub within the national project 'channeling computing resources from the eastern areas to the less developed western regions', boasts unique advantages in reducing data latency, cutting transmission costs, leveraging the clean energy, and enjoying reliable energy supply. Our joining to this center has already reaped considerable benefits."

—Bao Xiaoxu, Regional General Manager of ByteDance in Hubei



Flood discharge at the Baihetan Hydropower Station

E nergy

Consolidating
the Strategic
Foundation

CSR Scroll



Consolidating the Hydropower Sector as the Ballast

Comprehensive Benefits of Cascade Hydropower Stations

Flood control in the Yangtze River Basin

- To ensure flood safety, the effective joint dispatching of the six cascade hydropower stations along the main stream of the Yangtze River was thoroughly executed in 2022.
- An enhanced multi-level coordination mechanism was established to strengthen the capacity for forecasting and predicting extreme meteorological and hydrological events.

- In 2022, the Three Gorges ship locks ensured the safe operation of 10,400 times, facilitating the passage of over 40,600 vessels and achieving a shipping throughput more than 159 million tons, and the ship lift facilitated the transport of 3.52 million tons of goods.
- The Xiangjiaba ship lift successfully transported a total of 1.69 million tons of goods in 2022.

Shipping development

Clean energy

- In 2022, the six cascade hydropower stations along the main stream of the Yangtze River generated a total of 262.249 TWh of electricity.
- The peak output of the six cascade power stations exceeded 56 GW, with a maximum daily power generation of over 1.3 TWh. Notably, there were a total of 48 days when daily power generation surpassed 1.0 TWh.

- During the special operation of joint dispatching to fight against drought and ensure water supply, as well as the emergency water replenishment operation to combat salt tide, the Three Gorges Reservoir and the cascade reservoirs of the lower reaches of Jinsha River collaborated to replenish a substantial volume of 5.57 billion cubic meters of water to the downstream region.

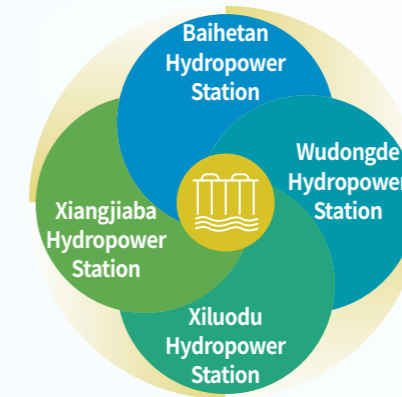
Drought alleviation and water replenishment

Ecological restoration

- For a consecutive 12 years, the multi-objective ecological dispatching from the cascade reservoirs in the lower reaches of the Jinsha River to the Three Gorges has been consistently implemented. In 2022, a total of 17 ecological dispatches under 5 distinct types were successfully executed.
- In 2022, a significant ecological dispatching experiment was conducted in the Three Gorges Reservoir to support the reproduction of pelagic (free-floating) egg-laying fishes. The fish spawning scale at the Yidu section reached an impressive figure of approximately 15.7 billion, including 8.9 billion from the four major Chinese carps. This achievement establishes a new record since the inception of the ecological dispatching experiment in 2011.
- The initiative to clean floating objects was expanded to the Wudongde and Baihetan reservoir areas. As a result, the preliminary unified management system for cleaning floating objects within the cascade reservoirs of the Yangtze River Basin has been established. Moreover, significant progress has been made in implementing standardized treatment and recycling of floating objects in front of dams at cascade power stations.

High-standard hydropower projects

On December 20, 2022, all generating units of the Baihetan Hydropower Station commenced operations, signifying the successful completion of the world's largest clean energy corridor.



Baihetan Hydropower Station

- All generating units of the project were successfully brought into operation.
- The impoundment level of the dam reached an unprecedented height of 825 meters, showcasing exceptional performance across all operational indicators.

Wudongde Hydropower Station

- The project received FIDIC 2022 Engineering Project Award.
- The safety appraisal for the completion of pivotal project was conducted with great success.

Xiluodu Hydropower Station

- The application acceptance process for the safety monitoring internal automation system was successfully finalized. This achievement marked a significant milestone as it is CTG's inaugural safety monitoring automation project to get acceptance and officially enter into operation.
- The one-button black-start test for the right bank unit was completed in a total time of 8 minutes and 57 seconds, 17 seconds shorter than the initial test conducted in 2020.

Xiangjiaba Hydropower Station

- The project won the 3rd International Milestone Concrete Dam Award.
- For ten consecutive years, the power station has maintained an excellent safety record, with zero personal injury accidents and zero equipment quality accidents, with over 3,900 days of safe operation.
- The draft control standard of the Xiangjiaba ship lift was raised from 2.0 meters to 2.2 meters, with the operating time extended to 22 hours per day.

Pumped storage projects

In 2022, CTG initiated the construction of seven pumped storage projects, with a total installed capacity of 9.5 GW. One pumped storage project with a capacity of 2.1 GW was successfully brought into operation. CTG has established a rolling project development pattern comprising projects to be commissioned, projects under construction, and projects in the pipeline.

All units of the Changlongshan Pumped Storage Power Station were put into operation, capable of generating 2,435 GWh of clean electricity annually.

The main project of the Tiantai Pumped Storage Power Station was commenced with an installed capacity of 1,700 MW. The power station boasts the world's highest rated head of 724 meters and China's largest single-unit capacity of 425 MW.

The Zhangye Pumped Storage Power Station in Gansu Province with an installed capacity of 1,400 MW started construction. Once completed, it will give strong support to the safe and stable operation of the clean energy base in the Hexi Corridor, Gansu.

Expanding Renewable Energy Growth Poles

Faster construction of onshore renewable energy bases

CTG has been actively advanced the large-scale development of onshore renewable energy and the base-oriented operation through the “renewable energy plus ecological governance” model. We have made significant progress in developing the first batch of renewable energy bases, building new energy bases in sandy areas, rocky areas, and deserts, and the third batch of renewable energy bases in China, with a total installed capacity of approximately 30 GW.

The pilot project of the first approved renewable energy project in sandy areas, rocky areas, and deserts in China, the renewable energy base project in the Kubuqi Desert in the central and northern parts of Ordos, started construction.

The first units of the first large wind and solar power base project in the Yangtze River Delta region, the 1200MW wind, solar and energy storage base project in the south of Fuyang, Anhui, was connected to the power grid.

The first units of the 550MW Yunnan Mile West Wind Farm Project, **with the largest single-unit capacity in China**, was connected to the power grid.

The 50MW Xiaoyangwo PV project in Yunnan Province, **the first one of the 2,700MW wind and solar project (close to Yunnan) of a national green energy demonstration base over the lower reaches of the Jinsha River**, was connected to the power grid.

Consolidated leading position in offshore wind power

We have fully implemented the strategy of taking a lead in offshore wind power and actively promote the centralized development of major offshore wind projects in key areas. As of the end of 2022, we achieved an impressive cumulative installed capacity of 4,875.2 MW, securing a leading position in China. We have substantially built five megawatt-scale offshore wind power bases in provinces such as Guangdong, Fujian, and Jiangsu. These bases collectively form the world’s largest offshore wind power corridor.



The 300MW offshore wind farm in Changyi, Shandong, **the first pilot and demonstration project integrating marine ranch and offshore wind power in the province**, realized full-capacity grid connection.

The Tianjin Nangang 200MW offshore wind farm project, **the first offshore wind power project in Tianjin**, was approved.

Better integration within the renewable energy industry

Exploring industry development

We have proactively engaged in research to explore development models and pathways for emerging business areas and forms, including renewable energy storage and integrated smart energy, aiming to better serve the development of the new energy system.

CTG’s first hydrogen production project, the Narisong PV hydrogen production demonstration project in Jungar Banner, Ordos, Inner Mongolia Autonomous Region, started construction.

The Qingyun Energy Storage Power Station developed by China Three Gorges Renewables (Group) Co., Ltd. (CTGR) in Shandong, became one of the first independent energy storage power stations in China to participate in the electricity spot market.

The largest distributed PV project and the user-side electrochemical energy storage project with the largest capacity in Shanghai was put into operation.

CTG and the People’s Government of Yicheng District, Zhumadian, Henan Province, signed a cooperation framework agreement on urban green comprehensive energy stewardship.

CTG started the construction of **the first public building energy entrusting demonstration project in Tianjin**.

Promoting industry integration

We have been actively exploring and pursuing effective strategies to facilitate the integrated development of clean energy, transportation, digital economy, and other sectors to promote the utilization of clean energy.

Integration with the transportation industry. We have implemented the program to promote the use of natural gas, electricity and hydrogen energy on and along the Yangtze River. In partnership with companies in the industrial chain, we have built the world’s largest electric cruise with the largest battery capacity – the “Yangtze River Three

Gorges 1,” and China’s first inland service ship powered by a hydrogen fuel cell – the “Three Gorges Hydrogen Ship No.1.” Furthermore, our “China Three Gorges Green Electricity and Green Hydrogen Model Station” has successfully generated 99.999% high-purity hydrogen gas after finishing equipment commissioning.

3,580_{MW}

Renewable energy newly installed capacity commissioned in 2022

31,920_{MW}

Total renewable energy installed capacity

Upgrading International Operations

Construction of high-quality overseas hydropower projects

Advancing construction: The Karot Hydropower Station in Pakistan, the first hydropower investment project along the China-Pakistan Economic Corridor (CPEC), successfully commenced full commercial operation.

Implementing technical transformation: The rotor of Generator No. 3 of the Jupia Hydroelectric Power Plant and the stator of Generator No. 4 of the Ilha Solteira Hydroelectric Power Plant in Brazil were successfully lifted and reinstalled in the machine pit wind tunnel.

As of 2022

38

Overseas clean energy power stations where CTG has controlling interest

Over 230^{TWh}

The cumulative clean energy generation by all overseas power stations

Contributions to local development

Improving local education

- ◇ **In Latin America:** By establishing the CTG Colombia Scholarship Program, we provided more than 20 Colombian university students with four-month Chinese language courses and comprehensive training on Chinese culture. Upon completion of the program, we extended valuable internship opportunities at CTG Latam.
- ◇ **In Europe:** We signed an agreement with the University of Salamanca in Spain on the CTG scholarship program. The program was designed to offer its excellent students the opportunities to further their studies in China.

Protecting the ecological environment

- ◇ **In Latin America:** In Brazil, we released 3.61 million fishes to the reservoirs of the Ilha Solteira and Jupia Hydroelectric Plants, and completed the afforestation of 155 hectares.
- ◇ **In Asia:** The Karot Hydropower Project in Pakistan established a long-term mechanism for fish protection by intensifying the investigation of fish populations and numbers in the reservoir area, conducting fish rescue and release operations, and raising awareness about the importance of fish protection. The project also studied its impact on bird migration and undertaken vegetation restoration activities in areas such as wild mountains and abandoned quarries within the reservoir area.
- ◇ **In Europe:** CTG regularly monitored the living environment of animals and birds in the vicinity of its projects, as well as the health of marine life.

Engaging in community development

- ◇ **In Asia:** CTG donated foods to impoverished villagers in Jordan during Ramadan, and contributed USD 650,000 and 600,000 rupees to Pakistan to aid local people in their fight against flood disasters.
- ◇ **In Europe:** CTG became a member of the Country Alliance for Zero Child Poverty in Spain, working towards alleviating child poverty within the country.
- ◇ **In Africa:** Since 2019, CTG has provided foods to the most vulnerable villagers in Egypt during Ramadan every year.
- ◇ **In Latin America:** CTG Brasil collaborated with Instituto Meio, a local non-profit organization, to initiate income-generating and entrepreneurship programs that support the transformation and sustainable development of underdeveloped areas surrounding its power stations.

Overseas renewable energy development

The Arinos, Brazil's inaugural greenfield PV project, commenced construction.

In Spain, the Belvis greenfield PV project, the Roadrunner PV project, and the Flores onshore wind power project were successfully delivered.

Deeper international exchange and cooperation

CSR communication

CTG's biodiversity commitment was officially displayed on the official website of the Convention on Biological Diversity of UN.

The Baihetan project was selected as an industrial case for the Sustainable China Industry Development Initiative 2022.

CTG's biodiversity conservation case was officially released during the UN Biodiversity Conference (15th meeting of the Conference of the Parties to the Convention on Biological Diversity).

The exhibition board for the first Global Hydropower Day was unveiled at the Three Gorges Project Museum.

Forums and conferences

CTG participated in the China Pavilion at the 27th session of the Conference of the Parties of the UNFCCC (COP 27).

CTG co-hosted the AESIEAP CEO Conference 2022 and showcased its exhibition at the conference.

CTG hosted the China-Portugal International R&D Seminar: Carbon Neutrality and Innovation.

CTG attended the 27th Congress and exhibition of the International Commission on Large Dams (ICOLD).

CTG attended the forum on "Ecological Conservation and Sustainable Development from a Global Perspective".

CTG attended the seminar on "Carbon Peaking and Carbon Neutrality: China's Strategy and Global Outlook".

CTG attended the China-ASEAN Energy Transition Roundtable.

CTG attended the "Seminar on the Accomplishments of China-ASEAN Collaboration in Advancing Renewable Energy Development and Fulfilling Climate Commitment Objectives".

Associations and organizations

CTG joined the China Council for International Investment Promotion (CCIIP).

CTG joined the China-Brazil Business Council (CBBC).

CSR Cases



The Changlongshan Pumped Storage Power Station

The Xiangjiaba Hydropower Station celebrates ten years of remarkable comprehensive achievements

On November 5, 2022, the Xiangjiaba Hydropower Station celebrated the tenth anniversary of the commissioning of its first batch of generating units. In the past decade, the station has produced over 300 TWh of electricity, equivalent to a reduction in standard coal consumption of approximately 90 million tons and a decrease in carbon dioxide emissions of about 250 million tons. It has facilitated the transportation of more than 5.2 million tons of cargo. The station has made significant contributions to China's economic and social development.



Panoramic view of the Xiangjiaba Hydropower Station

East China's largest pumped storage power station, Changlongshan, were put into full operation

On June 30, 2022, the Changlongshan Pumped-Storage Power Station in Zhejiang, the largest of its kind in East China, officially commenced operation of its No. 6 Unit. Situated in the load center of the East China power grid, the station boasts six 350MW pumped-storage units with a total installed capacity of 2,100 MW. Its primary functions include peak shaving, valley filling, frequency regulation, phase regulation, and

system backup for the East China power grid. On average, it can increase electricity generation by 2,435 GWh during peak consumption periods each year. This has further enhanced the regulation capacity of the East China power grid, optimized its power supply structure, and improved its operating conditions.

Shandong Changyi Marine Ranching and CTG 300MW Offshore Wind Power Integration Pilot Demonstration Project achieves full capacity grid connection

In December 2022, CTG's first offshore wind power project in Shandong, i.e., Changyi Marine Ranching and CTG 300MW Offshore Wind Power Integration Pilot Demonstration Project, was connected to the grid for power generation at full capacity. It is the first demonstration project for the integration of marine ranching and affordable offshore wind power in Shandong Province, and also a major project for the replacement of old growth drivers with new ones in Shandong. By using a three-dimensional development approach to intensively utilize marine resources, this project has improved the comprehensive utilization efficiency of marine resources. It provides a replicable model for the integrated development of marine ranching and offshore wind power in Shandong and even the whole country, constructing a "green economy + blue granary" model for replacing old growth drivers with new ones.



First generating units of the first large wind and solar power base project in the Yangtze River Delta region achieves grid-connected power generation

In December 2022, the first generating units of CTGR's 1,200MW wind, PV, and energy storage base project in southern Fuyang, Anhui Province, achieved grid-connected power generation. The project is the first large-scale wind and PV base project in the Yangtze River Delta region. It was built with a renewable energy base development model that combines wind power, PVs, energy storage, and subsidence area management to deeply integrate the efficient use of wind and solar energy resources with the overall management of coal mining subsidence areas. By constructing an energy storage power station, the project can address fluctuations in renewable energy power grid connection to a certain extent, further enhancing the reliability of power supply.



CTGR's 1,200MW wind, PV, and energy storage base project in southern Fuyang, Anhui Province

Construction begins on the world's largest wind and PV power project in sandy areas, rocky areas, and deserts

In December 2022, the construction began on China's first approved project in sandy areas, rocky areas, and deserts – the renewable energy base project in the Kubuqi Desert, located in central and northern Ordos. The pilot project marks the start of CTG's ambitious journey to transform desertified land into a renewable energy oasis. The project has a total installed capacity of 16 GW, including 8 GW of PV power, 4 GW of wind power, and 4 GW of thermal power. The wind and PV power project will promote a circular development model that integrates energy development, ecological restoration, desert management, and benefits for the people. This will facilitate the development of a new energy system that is clean, low-carbon, safe, and efficient, and promote the green and low-carbon transition of economic and social development.



Groundbreaking ceremony for the Kubuqi base project

The first hydropower investment project on the China-Pakistan Economic Corridor (CPEC) starts full commercial operation

On June 29, 2022, the Karot Hydropower Station in Pakistan, developed by CTG, was fully put into commercial operation. As the first hydropower investment project on the China-Pakistan Economic Corridor (CPEC), the Karot Hydropower Station boasts an average annual capacity of 3.2 TWh, which can meet the electricity demand of about 5 million local people. It can save about 1.4 million tons of standard coal and reduce carbon dioxide emissions by 3.5 million tons. The project will effectively alleviate Pakistan's power shortage, promote the country's energy construction and economic and social development, and contribute to global green, low-carbon and sustainable development.



Underground power plant of the Karot Hydropower Station, Pakistan

CTG's biodiversity commitment was officially launched on Convention on Biological Diversity (CBD) website

As the second part of the UN Biodiversity Conference COP-15 was about to be held, CTG's commitment to biodiversity conservation and the well-coordinated environmental conservation of the Yangtze River was officially displayed on the Convention on Biological Diversity (CBD) Secretariat's official website. This showcases CTG's sustainability philosophy, as well as its goals and actions in biodiversity conservation and the well-coordinated environmental conservation of the Yangtze River during China's 14th Five-Year Plan period. Notably, CTG has become the first central SOE in China to make this commitment.

Comments

“The Karot Hydropower Station will generate clean and cheap electricity for Pakistan, promoting green development in Pakistan.”

—Shahbaz Sharif, Prime Minister of Pakistan

“From the Jinsha River to the Yangtze River, the six major cascade hydropower stations are undoubtedly the pillars of the nation. The clean energy they generate will create significant ecological, social, and economic benefits, establishing a ‘new business card’ for China’s hydropower sector.”

—Wang Hao, Academician of Chinese Academy of Engineering

“CTG has effectively implemented the decisions and plans of the CPC Central Committee to address complex, severe flood control and drought resistance situations. With a clear political stance and keeping in mind the big picture, you have prioritized flood safety and water supply safety in the basin. By strictly following the dispatching instructions of the Changjiang (Yangtze River) Water Resources Commission (CWRC) and scientifically dispatching the Three Gorges Reservoir and downstream cascade reservoirs of the Jinsha River, you have made significant contributions to drought resistance and water supply. As a central SOE, you have fulfilled your tasks and social responsibilities.”

—The letter of thanks from the Changjiang (Yangtze River) Water Resources Commission (CWRC) under the Ministry of Water Resources on December 1, 2022

Ecological environment

Remaining True to Our Commitment



The Tangxun Lake in Wuhan, Hubei, after comprehensive water environment management and ecological restoration

CSR Scroll



Promoting the Well-Coordinated Environmental Conservation of the Yangtze River

Developing the “smart urban water manager” model

Improving the top-level design. CTG has constructed a robust governance framework, organizational structure, operational and maintenance system, and technical standard system for the “water manager” model.

Developing demonstration projects. In Lu’an, Anhui, we have successfully established a benchmark project for

comprehensive governance using the “water manager” model. This project has achieved coordinated management of all drainage and sludge, as well as 80% of water supply assets in the urban area of the city. As a result, local problems with water supply, drainage, and rainwater management have been effectively addressed.

Replicating the “water manager” model. To further promote the “water manager” model nationwide, CTG has registered several “water manager” companies, creating a strong momentum for piloting and replicating the model.

Building sound pipe networks

Strengthening top-level planning. We have developed implementation plans and project lists with a scientific approach, and established cooperation agreements with four cities to plan and execute high-quality pipeline projects.

Building a major investment platform. We have founded the Yangtze River Pipeline Co., Ltd. in Wuhan, Hubei.

As the primary investor in the development of pipe networks for the well-coordinated environmental conservation of the Yangtze River, the company engages in close collaboration with local stakeholders to enhance pipeline infrastructure.

Facilitating price mechanism reform. We promote the establishment of a

“pay-for-performance” mechanism, where pricing is determined by the reduction or collection of pollutants. In Yichang, Hubei, a trial implementation of “pay-for-performance” method for the sewage collection system has been introduced, which is a step forward in price mechanism reform.

Developing demonstration projects for urban sewage treatment

◇ **Improving sewage treatment efficiency.** The initial phase of water pollution control system projects in the four pilot cities has been largely completed, contributing to an average increase of 37% in sewage treatment capacity. This has effectively met the demands of urban development.

◇ **Increasing the density of drainage networks.** We have focused on shoring up weak links in pipe network construction. In the four pilot cities, the average density of urban drainage networks has risen to 13 kilometers per square kilometer, surpassing the national average. The average Chemical Oxygen Demand (COD) concentration of influent water in sewage plants has also seen a 15% increase.

◇ **Addressing environmental issues.** The issue of black and odorous water bodies in cooperative regions has been fully eliminated. Key areas including Shili River in Jiujiang City and Jiangdong Wetland in Wuhu City have seen clear waters and green banks again. Wuhu’s main urban area water environment management project has been recognized as a prime example of high-quality environmental rectification, as featured in the 2022 ecological environment warning film.

In 2022

RMB **29.6** billion

Investment in the well-coordinated environmental conservation of the Yangtze River

5,700 km

Length of new pipelines

Contributing to China’s Carbon Peaking and Carbon Neutrality Goals

Enhancing top-level design

Strengthening organizational structure. CTG has set up a mechanism for assigning equal responsibilities for environmental protection to Party officials and officials of the Corporation, and charging officials with environmental protection responsibilities in addition to their prescribed duties, and established a Leading Group for Carbon Peaking and Carbon Neutrality to strengthen unified leadership in the realm.

Developing an action plan. We have conducted carbon peak predictions and developed the *CTG Carbon Peaking Action Plan*, strategically outlining actions to peak carbon emissions during the 14th Five-Year Plan and 15th Five-Year Plan periods. The plan precisely defines the objectives,

roadmaps, key tasks, and major projects for accomplishing the goal of peaking carbon emissions.

Focusing on major tasks. By prioritizing essential tasks such as optimizing the industrial structure and layout, and facilitating the transition to green and low-carbon energy, we consistently strengthen the competitiveness, creativity, control, and influence of green and low-carbon development. Meanwhile, we leverage our expertise in the clean energy sector to expand the efficient supply of clean energy, support the green and low-carbon transformation of the energy industry, drive the establishment of a new energy system, and actively and cautiously work towards the goal of carbon peaking.

Implementing low-carbon operations

Boosting green electricity consumption: CTG has formulated the *Work Plan for Advancing Green Electricity Consumption*, sold a total of 9,378 domestic green electricity certificates (GECs) for unsubsidized power projects and 3.5893 million International Renewable Energy Certificates (I-RECs), and conducted nearly 1,997 GWh of green electricity transactions.

Intensifying carbon asset management: In 2022, CTG sold approximately 376,200 tons of international voluntary emission reductions under the Verified Carbon Standard (VCS) and approximately 345,800 tons of Chongqing voluntary emission reductions under CQ CER.

Promoting the development of green finance: CTG has set a record for the largest bond issuance by a domestic non-financial company by issuing green bonds of RMB 57.4 billion, including sustainability-linked bonds (SLBs). As of the end

of 2022, CTG’s green credit balance reached a new high, exceeding RMB 250 billion.

Implementing technical renovations for environmental protection: Thermal power companies have proactively implemented technical renovations to enhance the operation and maintenance of environmental facilities, and optimized combustion processes to ensure ultra-low emissions of sulfur dioxide, nitrogen oxides, and soot during operations. All thermal power companies under Hubei Energy Group Co., Ltd (HEG) have met the requirements of the pollutant discharge permit.

Advocating for a low-carbon lifestyle: CTG has organized Energy Conservation Week and National Low-Carbon Day to encourage low-carbon living and to raise public awareness of energy conservation and environmental protection.

Strengthening low-carbon research



Developing research centers

CTG has successfully established the Carbon Neutrality Intellectual Property Alliance and have been authorized to set up the National Carbon Neutrality Intellectual Property Operation Center.



Promoting clean energy research

CTG has committed to making breakthroughs on the R&D of advanced clean energy technologies, including hydrogen energy and innovative energy storage solutions. CTG has established a technology testing laboratory, which features a wide range of energy storage options, and completed a demonstration project integrating production, storage, transportation, refueling, and utilization of hydrogen energy.



Having climate-related exchanges

Seminars have been conducted on topics such as “International Cooperation on Emission Reduction Mechanisms and the Development of Carbon Assets for Chinese Companies’ Overseas Projects” and “Policies and Future Prospects for Green Electricity Trading”.

Saving Energy and Natural Resources

Increasing power generation

By advancing the joint dispatching of the cascade power stations, fully utilizing the autumn flood storage and maximizing the use of water resources, while ensuring flood control safety, CTG has been able to increase power generation.

Fighting drought and ensuring water supply during high-temperature weather: In 2022, the Yangtze River Basin faced a severe drought. To combat the drought, the Ministry of Water Resources launched two special actions called “Joint Dispatching of Reservoir Groups in the Yangtze River Basin for Fighting Drought and Guaranteeing Water Supply” from August to September. During these actions, CTG dispatched a total of 1.51 billion cubic meters of water to replenish the middle and lower reaches of the Yangtze River. Throughout 2022, CTG dispatched a total of 32.461 billion cubic meters of water. These efforts provided much-needed agricultural water to 356 large and medium-sized irrigation areas in the middle

and lower reaches of the Yangtze River. Additionally, domestic water was supplied to people living in major areas along the river, which met the water demand for over 2,877,333 hectares of autumn grain crops, benefiting a population of 13.85 million people.

Increasing water energy utilization: In 2022, CTG utilized its smart dispatching system to increase power generation by 8598.25 GWh from the cascade hydropower stations in the lower Jinsha River, excluding Wudongde and Baihetan Hydropower Stations, improving the water energy utilization by 4.77%.

Developing the “integrated energy manager” model

CTG has intensified its efforts to ensure the supply of clean energy by adopting new energy service models including the “integrated energy manager.” This model aims to drive the development of zero-carbon cities through smart integrated energy services. By providing services such as multi-energy complementation, combined cooling, heating, and power (CCHP) supply, and smart energy use to users like mines, hospitals, schools, and parks, it promotes the development of green buildings, low-carbon communities, and zero-carbon societies, and facilitates the creation of a green, low-carbon, and circular industrial system.

Advancing energy-saving transformation and application

CTG has actively incorporated new technologies and equipment, and optimized processes to achieve continuous improvements in our energy efficiency levels.

The cascade hydropower stations have actively promoted energy-saving renovations of lighting systems. For instance, the Xiangjiaba Hydropower Station has upgraded all its lighting fixtures with longer-lasting LED lights. After testing, it was found that the illuminance measured in the upgraded area increased by approximately 6 times, while the power consumption of the new lighting system was only 37.5% of the old one, saving electricity about 750 MWh annually.

To make rational and effective use of water resources, water reclamation systems have been established in the living camps of Wudongde construction area such as New Village, Jinpingzi, and Haiziweiba. After treatment, domestic sewage is used for spray irrigation of vegetation within the camps. In 2022, a total of 50,200 cubic meters of water was reused.

Implementing energy-efficient lighting solutions

Building water reclamation systems

Protecting Biodiversity

Aquatic life protection

Chinese sturgeon protection. In response to the cessation of spawning by wild Chinese sturgeons, CTG has initiated a natural breeding experiment program for the species. 14 parent Chinese sturgeons were released into the tailwater area of the underground power station on the right bank of the Three Gorges Project, and related research was also carried out. This marks a new stage in Chinese sturgeon protection, transitioning from expanding its population through artificial breeding to restoring its natural population. It is a bold innovation in the new model for aquatic life protection along the Yangtze River.

Proliferation and release. CTG has established and operated four rare and endemic fish breeding research bases in the middle and upper reaches of the Yangtze River, as well as the Chongqing proliferation and release station of the National Nature Reserve for Rare and Endemic Fish in the Upper Reaches of the Yangtze River. CTG has more than 100,000 square meters of fish breeding and rescue bases, and has implemented biodiversity conservation measures tailored to regional conditions. More than 20 million rare fish, including the Chinese sturgeon, have been released, effectively promoting the restoration of their natural populations.

Release of fish collected at hydropower stations. The tailwater fish collection and passage system at the Wudongde Hydropower Station has collected 33,931 fish from 31 different species. This includes the collection of 2 major fish species and 7 minor fish species passing the station. These fish have been safely carried by fish transport ships and released into the flowing river section of the Wudongde reservoir area. Similarly, the Baihetan Hydropower Station’s tailwater fish collection and passage system has collected 14,435 fish from 42 different species, including all 4 major fish species passing the station.

2.2 million

Rare and endemic fish species released in 2022

300,000

Chinese sturgeons

360,000

Yangtze sturgeons

Terrestrial life protection

Creating an innovation platform

Building on the Yangtze River Rare Plant Research Institute, CTG has established a terrestrial ecological innovation platform that focuses on key technologies in biodiversity protection, plant conservation, ecological restoration, etc.

Conducting ecological restoration research in the reservoir area

CTG has established a 22,000 square meter demonstration area for ecological restoration in the hydro-fluctuation belts of the Three Gorges Reservoir. The vegetation coverage rate in this area has increased from 10% to over 80%. CTG’s technologies for restoring the hydro-fluctuation belts has reached an internationally leading level, providing valuable experience for ecological restoration projects on reservoir banks, river beaches, and high steep slopes.

Establishing protected areas

CTG has established China’s first small population protection area for *Rhamnus tsekweiensis*, a rare and endangered plant species peculiar to western Hubei.

80 species

Rare and endemic plants in the Yangtze River Basin collected

Overcoming technical difficulties

The challenges in breeding various rare and endemic plant species have been overcome, bringing about the cultivation of 30,000 seedlings. Moreover, the difficulties in returning rare plants to the wild state have been surmounted. CTG has planted 10,000 plants, including *Adiantum nelumboides* and *Myricaria laxiflora*, on both banks of the Yangtze River, which are currently thriving. Additionally, CTG has successfully screened 20 species of flood-tolerant trees, shrubs, and herbaceous plants in the Three Gorges Reservoir area, and developed innovative techniques for reconstructing and restoring vegetation in hydro-fluctuation belts.

Innovating rare plant management models

For the management of rare plants, CTG has implemented a comprehensive approach that includes daily inspections, weekly summaries, monthly seminars, quarterly assessments, and annual evaluations. The application of non-destructive testing methods, precise monitoring, early warning, and prevention and control models, as well as scientific formulas ensure the healthy growth of rare plants.

1,380 species

Rare and endemic plants in the Yangtze River Basin under protection

CSR Cases



Swamp cypress forest in the Jiangdong Water Park in Wuhu, Anhui Province

CTG's biodiversity conservation case released at COP15

On December 9, 2022, the second part of the 15th meeting of the Conference of the Parties (COP15) to the United Nations Convention on Biological Diversity (CBD) was held in Montreal, Canada. CTG's case – Biodiversity Conservation Actions to All Business Areas – was included in the *Business Biodiversity Conservation Cases* that was officially released at the “Accelerating business actions in China for biodiversity conservation” side event in the China Pavilion. The case demonstrates how CTG has

integrated the concept of “open, innovative environmental conservation throughout the full lifecycle of all projects in the Yangtze River basin” into biodiversity conservation actions while making continuous efforts to promote innovation and practices in ecology and species protection, and striving to create a CTG model of harmonious coexistence between human and nature.

Yangtze River key conservation project in Wuhu was recognized as one of the “Key Ecological and Environmental Protection Technology Demonstration Projects in 2021”

The Jiangdong Water Ecological Park in Wuhu, Anhui Province, has implemented a water reclamation demonstration project that has been recognized as one of the “Key Ecological and Environmental Protection Technology Demonstration Projects in 2021”. The project employed a “subsurface flow constructed wetland + enhanced treatment wetland + ecological stabilization pond” scheme to create a green symbiotic ecological system with the Zhujiqiao Sewage Treatment Plant. Aiming to address challenges such as the large land occupation and temperature-sensitive growth of aquatic plants in wetland tailwater treatment, the project has analyzed the optimization of filler material and ratio, plant

selection and configuration, and process and technology combination, proposing targeted measures to ensure the stable operation of the ecological wetlands. In addition, the project has fully taken into account the demand for water resources in urban rivers and lakes. It has scientifically and reasonably set up water replenishment points and controlled the amount of water replenishment. These efforts have effectively addressed issues such as insufficient water supply to urban rivers, lakes, and wetlands, and unsatisfied water environment and hydrodynamic conditions, which is worthy of being promoted nationwide.

Promoting upstream and downstream ecological restoration through hydro-fluctuation belt restoration at the Three Gorges Dam

CTG has implemented ecological restoration of hydro-fluctuation belts by selecting advantageous plants, optimizing the arrangement of trees, shrubs, and herbaceous plants, and developing engineering technologies to aid in the restoration process. The key technological system for ecological restoration has been promoted and applied successfully. A 22,000 square meter ecological restoration demonstration area has been established in the near-dam areas upstream and downstream of the Three Gorges Dam. Through the use of ecological restoration technologies, CTG has achieved soil stabilization, slope protection, pollution reduction, and ecological greening on the hydro-fluctuation belts.



The test area in the fluctuation zone with an elevation of 150-175 meters within Pianyanzi, a region in the Three Gorges Reservoir area



Xiangjiaba and Xiluodu Rare Plant Garden

200

The garden has introduced about 200 rare and endemic plant species from the Xiangjiaba and Xiluodu reservoir areas

Successful completion of the first rare plant breeding and research center in the Jinsha River Basin

In December 2022, the Xiangjiaba and Xiluodu Rare Plant Garden, the first rare plant breeding and research center in the lower Jinsha River, was successfully completed. The garden has introduced about 200 rare and endemic plant species from the Xiangjiaba and Xiluodu reservoir areas. This is the first rare plant breeding and research center established by CTG in the Jinsha River Basin. It aims to facilitate the protection of rare plants in the Yangtze River Basin and make significant contributions to biodiversity conservation.

Construction begins on China's first CCS-classified hydrogen fuel cell-powered inland river service ship

On May 17, 2022, the construction of China's first service ship powered by a 500kW hydrogen fuel cell, the "Three Gorges Hydrogen Boat No.1", was launched in Zhongshan, Guangdong Province. The ship, which had been classified by the China Classification Society (CCS), was built by China Yangtze Power Co., Ltd. (CYPC), a subsidiary of CTG, in collaboration with No. 712 Research Institute of China State Shipping Corporation Limited (CSSC).

The "Three Gorges Hydrogen Boat No.1" is a passenger catamaran that is powered primarily by hydrogen fuel and auxiliarily by lithium iron phosphate (LFP) batteries. Such power system was developed independently in China. The ship will mainly be used for transportation in the Three Gorges Reservoir, between the Three Gorges Dam and the Gezhouba Dam, as well as for reservoir inspections and emergency tasks. The construction and commissioning of the "Three Gorges Hydrogen Boat No.1" will further promote the application of hydrogen technology on inland waterway vessels. This will support the development of China's hydrogen-powered ship industry and contribute to building a green and low-carbon industry system, as well as industry transformation and upgrading.

Comments

"CTG has played a significant role in the well-coordinated environmental conservation of the Yangtze River through its innovative 'water manager' model. Unlike traditional urban sewage treatment methods, which mainly focus on end-of-pipe treatment, the 'water manager' model takes a more holistic approach; it addresses sewage treatment at the source and integrates flood control and drainage into a comprehensive management strategy, achieving multiple goals."

—Niu Xinqiang, Deputy to the National People's Congress, Academician of Chinese Academy of Engineering, and President of Changjiang Institute of Survey, Planning, Design and Research (CISPDR Corporation)

"Our community looks so much beautiful now! When it rains, there is no more sewage flowing around, and everything is clean and tidy!"

—Yuan Jun, a resident in the Hubin Neighborhood, Jiujiang City, Jiangxi Province



Nice

Drawing a Blueprint of Harmony

Subsidizing the cultivation of Ziqiu grapes in Fubingtian Village, Anbian Town, Xuzhou District, Yibin City, Sichuan Province

CSR Scroll

Supporting Employee Growth

Employee rights and interest

Employment equality

We strictly comply with the laws and regulations of China as well as countries and regions where our projects are operated, and follow all international conventions, laws and regulations on labor human rights. Committed to providing equal employment opportunities, we prevent all forms of discrimination, including those related to gender and region, and prohibit child labor and forced labor. By exploring market-oriented employment mechanisms and adopting more proactive, open, and effective human resource policies, we work to stabilize employment through concrete actions.

2,700+

College graduates recruited in 2022

Democratic management

We implement the system of employee representatives congress, and provide employees with unblocked channels to voice their suggestions and concerns. Meanwhile, we constantly revise the implementation methods and regulations of the system, and strengthen grassroots workers' unions and its management team.

27

Experienced managers recruited in 2022

Compensation and benefits

We develop reasonable, scientific, and standardized compensation incentives and pay rise systems, and prioritize employees in key positions and front-line workers in wage distribution. We have enhanced our market operation and supervision mechanisms for supplementary medical insurance and corporate annuities. Our goal is to establish a multi-tier medical and pension security system for our employees, increasing their senses of well-being and fulfillment.

660

Skilled talents recruited in 2022

Employee development

Expanding professional title evaluation channels: We have revised the *Professional Title Management Measures* and adjusted our professional title evaluation policies in a timely manner. In 2022, a total of 13 highly skilled employees were awarded the title of Senior Engineer.

Conducting vocational skill level certification: We have formulated the *Vocational Skill Certification Management Measures, Vocational Skill Level Certification Regulations, and Implementation Rules for Quality Supervision over Vocational Skill Level Certification*. In 2022, we completed the certification for employees in 7 different types of work, and issued vocational skill level certificates to 134 employees.

Organizing talent selection campaigns: We actively organize our outstanding skilled employees to participate

in national selections for highly skilled personnel. We have recommended more than 10 highly skilled employees for prestigious awards such as the China Skills Award and the National Technical Expert. Among all contestants, one won the title of National Technical Expert, and the other was recognized as an "Individual with Outstanding Contribution to the National Skilled Personnel Training Program".

Cultivating national level craftsmen: By comprehensively deepening the reform of the three systems, we are able to cultivate, introduce, and use personnel in an all-round manner, and create an open and inclusive environment for innovation. We aim to continuously inspire the vitality and momentum for development, laying a solid foundation for cultivating craftsmen.



Hands-on skill examination for vocational skill level certification in 2022

Employee care

Caring for the wellbeing of employees

On special occasions and Chinese traditional festivals, we extend our heartfelt congratulations, or pay a visit to our employees all year around. During the pandemic, we distribute epidemic prevention medicines and organize special visits to our female employees.

Supporting employees with special needs

In 2022, we paid a sympathy visit to our employees in extreme difficulties, those stationed overseas, those in Shanghai during the COVID-19 outbreak and national model workers who were suffering from serious illnesses.

Enriching cultural and sports activities

From enterprise-level, regional-level to grassroots-level, we have established a network for cultural and sports activities to regularly organize various events for our employees. In 2022, we held events such as employee walkathons and the first employee sports games in the Hubei region.

Three congratulations: On special occasions such as birthdays, weddings, and the birth of a child, we extend our heartfelt congratulations.

Five visits: We pay visit to employees who have given birth, are hospitalized, have lost family members, or are suffering major changes, and employees from impoverished families during major Chinese traditional festivals.

All-season care to employees' well-being: In spring, we pay a sympathy visit to our employees in difficulty, those stationed overseas or in remote and poverty-stricken regions, front-line staff, as well as our model employees during the New Year's Day and the Spring Festival. During summer and winter, we organize a variety of activities to provide comfort and extend our care to our employees. In the autumn, we offer financial aid to the children of workers who have been admitted to universities but are facing financial hardships.

413

Employees received our assistance

RMB 676,000

Employee assistance expenditure

Offering Targeted Assistance

CTG always takes offering targeted assistance as its due responsibilities. Hence, the Corporation continues its assistance for Wushan County and Fengjie County in Chongqing, Wan'an County in Jiangxi Province, and Bairin Left Banner in Inner Mongolia to drive their high-quality development.

Industry: CTG has successfully implemented 34 projects to foster a “one industry for one county” development pattern. The CTG Town project is launched in several locations, including Anping Town in Fengjie County, Quchi Township in Wushan County, Luotang Township in Wan'an County, and Biluotai Town in Bairin Left Banner, to push the implementation of renewable energy investment projects in rural areas.

Talents: CTG provides on-line and off-line training for grassroots officials. So far, a total of 7,477 grassroots officials at the county, township, and village levels, 1,260 pioneers in rural vitalization, and 4,288 professionals with specialized skills, have received the training.

Ecology: CTG invests in local ecological conservation and restoration projects. We adopt an integrated ecological governance model to improve the ecological environment of Luoping Town in Wushan County and Hailitu Village in Bairin Left Banner.

Culture: CTG has constructed the Times Model Square in Wushan County, Chongqing, and established the Xiazhuang Cliff Road Education Base and a tourism brand up to the highest standards. Furthermore, we have vigorously developed cultural landscape tourism projects, including Dachang Ancient Town and CTG Zhuzhi Village. In Wan'an County, Jiangxi Province, we are developing the Farmer Picturesque Village in Tianbei.

RMB **400** million
Investment in targeted assistance programs

60
Targeted assistance programs implemented

RMB **96.6** million
Expenditure on consumption-driven assistance in 2022

Providing All-Round Assistance in the Reservoir Areas

Three Gorges Reservoir area

We have initiated 25 assistance programs to provide continuous support for the local infrastructure construction and the ecosystem restoration. We strive to build a habitable and beautiful reservoir area that is conducive to business, enhance the well-being of relocated residents and boost the prosperity of the reservoir area.

25 Assistance programs launched in the Three Gorges Reservoir area

RMB **39** million+
Total expenditure in 2022

Jinsha River reservoir area

We have carried out 44 assistance projects to consolidate and expand our accomplishments in housing and healthcare as well as other fields related to people's wellbeing, support local education and improve the living quality of the relocated population in the reservoir area.

44 Assistance programs launched in the Jinsha River reservoir area

RMB **140** million+
Total expenditure in 2022

Continuously Aiding Xinjiang, Tibet and Qinghai

CTG has offered all-round and multi-tier support to foster the prosperity of the local people.

In Xinjiang

In CTG's paired-up assistance to Pishan County, the Corporation has implemented 6 assistance programs that encompass education, cultural tourism, and talents cultivation, contributing to the well-being of the locals.

In Tibet

In CTG's paired-up assistance to Dengqen County, the Corporation has outlined 20 assistance measures. In counties such as Medog, we have launched 10 assistance programs, making a positive impact on local industrial development, infrastructure and the livelihoods of the people.

In Qinghai

Boosting the local renewable energy industry. CTG has supported the construction of a PV base in Hainan Prefecture. Besides, our programs such as congenital heart disease assistance, hospital construction aid, and ecological forest construction, have effectively improved the rural infrastructure and local public services.

Engaging in Public Welfare Undertakings

Supporting families with pediatric patients

CTG has funded the construction of CTG Cabins of Hope in both Wuhan and Beijing to provide support for families with pediatric patients, helping them tide over difficulties.

496
Families have received our accommodation support

Contributing to disaster relief

CTG has proactively assumed social responsibilities by aiding the earthquake and flood prevention, disaster relief, and emergency rescue efforts in Sichuan, Anhui, and Chongqing and has also donated money to fully support the resumption of work and production in Lanzhou and Inner Mongolia.

RMB **50** million
Donation for earthquake relief in Luding, Sichuan

Caring for people with disabilities

Our donations to the “Happy Smile” program has helped more than 600 children from underprivileged families with cleft lip and palate receive free surgery. In collaboration with Xinxing Cathay, we have implemented a cochlear implant program, which has helped over 250 hearing-impaired patients regain their hearing.

RMB **47.88** million
Donation for the COVID-19 prevention in Guizhou Province and Inner Mongolia Autonomous Region, as well as in cities such as Wuhan and Lanzhou

CSR Cases



Nice – Drawing a Blueprint of Harmony

Tea plantations in Luofu Village, Yichang, Hubei Province

Promoting the “renewable energy plus industrial assistance” model based on local conditions

On December 30, 2022, the 3MW rooftop distributed PV project in Bairin Left Banner’s Agricultural and Livestock Product Processing Assistance Industrial Park in Inner Mongolia was fully connected to the grid. It marked a new level of CTG’s targeted assistance efforts. As the first of its kind among CTG’s key livelihood projects to be fully connected to the power grid, it allows the electricity generated to be used by the local people with any surplus electricity being transmitted to the grid. By effectively leveraging local solar energy resources, CTG has promoted the development of a new “renewable energy plus industrial assistance” model, and supported Bairin Left Banner in achieving development in all aspects.



The 3MW rooftop distributed PV project in Bairin Left Banner’s Agricultural and Livestock Product Processing Assistance Industrial Park in Inner Mongolia

Increasing rural incomes through ecological tea plantations

CTG has provided paired-up assistance for the tea-tourism integrated demonstration park project in Luofu Village, Hubei Province. After several upgrades and renovations, the village now boasts three characteristic homestay points, nearly 66 hectares of tea gardens, and

two large tea factories with annual processing capacity of over 1,500 tons of fresh tea leaves. By leveraging the abundant tourism resources of the Three Gorges Dam and its picturesque landscape, Luofu Village attracts a large number of tourists and offers one-

stop service incorporating tea picking, fishing, dining, and accommodation. This has led to a significant improvement in the local ecological conservation and increased the incomes of local villagers.

Improving local basic medical services with the Red Cross Fraternity Health E-Station

In partnership with the Chinese Red Cross Foundation, CTG established the “Red Cross Fraternity Health E-Station” in 6 township health clinics and 11 village clinics in Wushan County, Chongqing. Based on information technology platforms and remote diagnosis and treatment equipment, the program allows local patients to access diagnostic services from renowned experts at top-tier hospitals in China. The clinic in Tiangong Village is also equipped with instruments and equipment for routine examinations and first-aid. In addition, professional skills training is provided for the medical personnel to improve the local basic medical services.



The Guandu Town Central Health Clinic in Wushan County, Chongqing, receives remote guidance from experts at the China-Japan Friendship Hospital

The Jinyang River “CTG Heart-Connecting Bridge” opened to traffic in Daliangshan, Sichuan

On June 30, 2022, the “CTG Heart-Connecting Bridge,” which boasts the world’s tallest rigid-frame pier, was opened to traffic. Spanning the Jinyang River, the bridge was funded by CTG, and serves as a bridge for the G356 national highway to improve regional transportation. It is also the main passage connecting the new and old urban areas of Jinyang County. As a result, travel time between these two areas has been reduced from an hour and a half to less than half an hour.



The Jinyang River “CTG Heart-Connecting Bridge” is opened to traffic

CTG Cabins of Hope unveiled in Wuhan

In 2022, the CTG Cabins of Hope was officially established near Wuhan Children’s Hospital to provide free temporary accommodation for families who take their children to Wuhan for treatment. The CTG Cabins of Hope is located in an apartment building next to Hong Kong Road in Jiang’an District of Wuhan, and is less than a 10-minute walk from Wuhan Children’s Hospital. All of its cabins are clean, cozy, and fully equipped with all the daily necessities.



Helping increase incomes of relocated residents

In Wuding County, Yunnan Province, the Xihe Resettlement Site has been renamed Jinsha Community. Located at the junction of urban and rural areas, it has been included in the unified construction management of local urbanization. With the support of CTG’s resettlement assistance funds and land allocated for the resettled population of the Wudongde Hydropower Station, the county has attracted leading flower planting companies and established a flower planting base, primarily for rose cultivation. This initiative has helped over 400 residents of Jinsha Community find jobs near their homes, transforming the community into a habitable place that is conducive to business and tourism.



Rose plantation in Jinsha Community



The CTGR PV “Front Runner” project in Tongchuan City, Shaanxi Province captures solar power to support the development of agriculture, rural areas and farmers

Comments

“CTGR’s PV technology ‘Front Runner’ project in Tongchuan has brought a positive impact on the development of Yunmeng Township. The project and relevant agricultural planting have created jobs for local residents, helping them get out of poverty and increase their incomes.”

—Zhang Xiaofeng, Township Chief of Yunmeng Township, Yijun County, Shaanxi Province

“Donated to us by CTG, it is a part of the village’s collective economy and currently managed by the owner of this homestay point. Tourists come here to enjoy delicious meals, appreciate the scenery, and pick tea leaves. The previously unused land in the village has now been put to good use, providing a boost to the collective income of the village.”

—Wang Jiayan, Secretary of the Party branch in Luofu Village, Hubei Province

“The Xiluodu Hydropower Station has driven the construction of a series of infrastructure projects in Jinyang County, significantly boosting the local economic development and improving the productivity and living standards of the locals.”

—Bai Zhiqun, Deputy Mayor of Jinyang County, Sichuan Province

“The cabin serves not only as a temporary shelter, but also as a space for people to come together, relieve anxiety, and obtain information.”

—Director Xiong of the Hematology Department of Wuhan Children’s Hospital, Hubei Province

Sustainability Management

By improving the sustainability governance framework, innovating in project management, and promoting the application of information technology in sustainable development, CTG has integrated the sustainability philosophy and requirements into the approach of its business operations. This has laid a solid foundation for achieving sustainable development.

CSR Strategy

CTG has developed the *Social Responsibility Plan of China Three Gorges Corporation During the 14th Five-Year Plan Period*, which outlines a strategic framework that encompasses one goal, three exemplars, five major initiatives, and four significant measures.

One goal: Achieving the goal of optimizing comprehensive economic, social, and environmental value creation.

Three exemplars: Becoming an exemplar of practice, an exemplar of image, and an exemplar of excellent management.

Five initiatives: Collaboratively adopting responsible production methods, safeguarding the beautiful ecological environment, enhancing the lives of relocated communities, advancing the rural vitalization strategy, and shaping a global responsible image.

Four measures: full-coverage staff cultivation, all-encompassing advancement, holistic indicators enhancement, and thorough communication.

CSR Operating Mechanism

Establishing the first CSR department among the headquarters of SOEs. CTG has established a dedicated CSR office at its headquarters. The office is responsible for fulfilling social responsibilities, promoting rural vitalization, and providing aid to regions such as Xinjiang, Tibet, and Qinghai. CTG is the first central SOE to announce the establishment of a functional department dedicated to CSR management at its headquarters.

Selecting excellent CSR cases. Focusing on key CSR topics, CTG has launched an initiative to evaluate and recognize outstanding CSR cases. A total of 73 CSR cases were collected, among which 15 were ultimately selected as excellent CSR cases after a preliminary review and comprehensive evaluation by an expert group.



CTG won the **“Golden Bull Award for CSR Management”** initiated by the China CSR 100 Forum.

CTG Won the 17th People’s Corporate Social Responsibility Award for Rural Vitalization.

CTG Won the first **“Inner Mongolia Charity Award”**.

The short video “My Mother” was awarded second prize in the **“Public Benefit” category for films in the power generation sector in 2022 China Power Industry Public Transparency Summit Forum.**



CSR Brand Projects

We have enacted unified plans and implemented fine management to strengthen closed-loop lifecycle management of CSR projects. Through well-regulated, sustained and transparent project operations, we have delivered a batch of targeted, innovative, and influential CSR projects. These include the “Contributing to Rural Vitalization” “CTG Inspirational Class” “CTG Cabins of Hope” “CTG Education Support” “CTG Brightness Action” “CTG Hearing-Aid Action” “CTG Seed Fund”.

CSR Communication

We have established a regular CSR disclosure mechanism, and released a series of “1+N” CSR reports. We are dedicated to improving the quality of our disclosures while ensuring timely, accurate, and standardized information disclosure.

- ◇ CTG regularly releases sustainability reports and annual reports on environmental protection. CYPC and CTG Brasil also release annual CSR reports and sustainability efforts.
- ◇ CTG has released its first biodiversity conservation report.
- ◇ CTG has released its first CSR report in Pakistan.
- ◇ CTGR has released its first CSR report and CTGI has released its first sustainability report.

Stakeholder Communication

CTG has attached importance to identifying core stakeholders and their key expectations, and strived to meet their expectations in practice. Besides, CTG continues to enrich channels and carriers for stakeholder communication, guarantees stakeholders’ rights to know, participate and supervise, and continuously improves CSR management and practices, thus optimizing the comprehensive value for stakeholders.

Stakeholder	Core appeals	Communication
Investors	<ul style="list-style-type: none"> ◇ Maintenance and appreciation of investment ◇ Supervision and assessment ◇ Compliance management 	<ul style="list-style-type: none"> ◇ Published a series of reports, including the Annual Sustainability Report, Annual Report on Environmental Protection, and the Information Technology Application Annual Report, Annual Financial Statement, and Social Responsibility Report of China Yangtze Power Co., Ltd. ◇ Improved the compliance management system.
Resettled residents from the reservoir areas	<ul style="list-style-type: none"> ◇ Arranging resettlement in cooperation with the government ◇ Promoting the sustainable development of resettled residents 	<ul style="list-style-type: none"> ◇ Proactively arranged resettlement in cooperation with the government. ◇ Invested heavily on the resettlement of residents and their prosperity in the Three Gorges Reservoir area and the Jinsha River reservoir area.
Communities	<ul style="list-style-type: none"> ◇ Charity ◇ Promoting economic and social development 	<ul style="list-style-type: none"> ◇ Supported rural vitalization, provided targeted assistance, and aided the reservoir areas, as well as Xinjiang, Tibet and Qinghai. ◇ Assisted in emergency rescue and disaster relief and supported the resumption of work and production in affected areas.
Employees	<ul style="list-style-type: none"> ◇ Protecting labor rights and interests ◇ Compensation and benefits ◇ Career development 	<ul style="list-style-type: none"> ◇ Carried out activities to foster democracy and held employee representatives congress. ◇ Developed reasonable compensation and incentive plans and pay growth mechanisms. ◇ Conducted training and staff support programs to fuel staff development.
Customers	<ul style="list-style-type: none"> ◇ Coordinated development ◇ Win-win cooperation ◇ Stable and safe energy supply 	<ul style="list-style-type: none"> ◇ CTG’s annual power generation output reached 383.8 TWh. ◇ Ensured safe and stable power supply. For example, in 2022, we successfully fulfilled our energy supply tasks during critical periods, including meeting the peak demand in the winter and spring seasons, and securing power supply during the Beijing Winter Olympics and Winter Paralympic Games, the National “Two Sessions”, peak hours in summer, and the 20th CPC National Congress.
Environment	<ul style="list-style-type: none"> ◇ Ecological protection ◇ Energy conservation and emission reduction ◇ Responses to climate change 	<ul style="list-style-type: none"> ◇ Released Chinese sturgeons and second-generation Chinese sturgeons to the Yangtze River and the Jinsha River, respectively. ◇ Prepared the 18th <i>Annual Report on Environmental Protection</i>, which objectively demonstrated the environmental performance of CTG and responded to what stakeholders concern in a truthful and comprehensive manner. ◇ Compiled the first biodiversity conservation report. ◇ Formulated the <i>CTG Carbon Peaking Action Plan</i>.
Partners	<ul style="list-style-type: none"> ◇ Fair operation ◇ Responsible procurement ◇ Win-win cooperation 	<ul style="list-style-type: none"> ◇ Conducted credit evaluations for 18,726 suppliers in 2022. ◇ Improved and standardized the procurement system. ◇ Strengthened foreign cooperation and exchange.
Provinces and cities in the Yangtze River Basin	<ul style="list-style-type: none"> ◇ Flood control and drought relief ◇ Improving shipping 	<ul style="list-style-type: none"> ◇ Fully leveraged the role of the cascade hydropower stations in flood control, power generation, water replenishment, shipping improvement, and ecological restoration, to contribute to the economic and social development of provinces and cities in the Yangtze River Basin. ◇ Facilitated the cooperation between enterprises and local governments to promote the well-coordinated environmental conservation in the Yangtze River Economic Belt; signed “Smart Urban Water Manager” agreement with more than XX cities along the river.
Media	<ul style="list-style-type: none"> ◇ Transparent operation ◇ Information disclosure 	<ul style="list-style-type: none"> ◇ The Chinese version of CTG’s official website hit 3.92 million views. ◇ The number of followers of “CTG official WeChat” totaled 125,000. ◇ Opened official accounts on multiple new media and self-media platforms, including Xuexi Qiangguo, Toutiao, People’s Daily, and The Paper, to post news of CTG, attracting early 100 million views. ◇ Opened official accounts on TikTok and WeChat video platform to post news of CTG, attracting a total of 13 million views, and 14.25 million impressions in 2022 respectively. ◇ Covered by CCTV News for 45 times in 2022.

Outlook for 2023

2023 marks the first year for implementing the guiding principles of the 20th CPC National Congress in full swing. It is also the fifth anniversary of President Xi Jinping's important speeches and instructions about the development of Three Gorges Project and of Yangtze River Economic Belt made on April 24 and 26, 2018. As a crucial juncture for the implementation of China's 14th Five-Year Plan, 2023 also marks the 30th anniversary of our establishment. At CTG, we will further commit ourselves to in-depth understanding and implementation of the guiding principles of the 20th CPC National Congress. Guided by President Xi Jinping's instructions, we will continue to prioritize the nation's core interests, and seek a harmonious balance between development and environmental conservation. We will continue working tirelessly to make new contributions to the harmonious coexistence of man and nature while building ourselves into a world-class multinational clean energy enterprise at a faster pace.

Aiming to be an architect of a package of green development solutions. We will persistently develop ourselves while preserving the environment, and implement environmental conservation measures in line with our development strategies, harmonizing development and ecological conservation with an eye on the overall picture. We will properly synchronize the development of all business sectors such as clean energy, ecological protection, emerging business forms, and financial capital. By maintaining green ecosystems with lucid waters and lush mountains as a fundamental prerequisite, guaranteeing clean and reliable green energy as a pillar, and promoting green digital industry and other green energy industries as the value enhancers, we aim to deliver a package of service plans for green development.

Aspiring to be a creator of shared green development value. We will remain committed to the economic, and social responsibilities, and the harmony of economic, social, and ecological benefits. With our mission to safeguard nature, replenish the ecosystem, and benefit the public, we aim to fulfill people's aspiration for a better life by generating more material wealth and providing better ecological products.

Striving to be a leader in the vanguard of green development. We continuously strengthen our exploration and research in the frontier fields of green development, expedite the establishment of cradles for original technologies, and trying to be a leader in the modern industrial chain. Our ambition is to become an innovator, standard-setter, and driver of industry upgrades in the fields of clean energy and environmental protection. With scientific comprehension of nature and conformity to natural principles, we strive to constantly enhance the rationality of our business layout and the efficiency of our development, thus establishing and securing our position as an industry leader.

Seeking to be a trailblazer in the great endeavor of green development. We will actively explore the advantage complementarity and collaborative development mechanisms of ecological conservation and clean energy businesses. We aim to fully unleash the potential of comprehensive utilization of water resources in the Yangtze River Basin, and push the high-quality sustainable development of the well-coordinated environmental conservation of the Yangtze River. By creating opportunities for the general public to enjoy the splendor of nature, the richness of life, and the fruits of development amidst lucid waters and lush mountains, we aspire to contribute to and empower the harmonious coexistence between man and nature.



Appendixes

Key Performance Indicators

Economic

Value Creation

Indexes	2020	2021	2022
Total tax payment (RMB billion)	21.904	25.001	28.765
Revenue (RMB billion)	111.638	138.306	146.259
Year-on-year growth rate of revenue (%)	12.48	23.87	5.75
Net profit growth rate (%)	23.38	11.76	-16.58
Return on net assets (%)	10.09	9.83	7.4

Technological Innovation

Indexes	2020	2021	2022	
Investment on technology (RMB million)	3,366.93	4,153.30	4,462.2656	
R&D investment (RMB million)	2,111.6498	2,658.5989	3,102.0932	
Proportion of technological workers (%)	15.1	17.2	19.9	
Number of standards compiled	international standards	5	1	2
	national standards	18	10	6
	industry standards	21	37	40
	association standards	6	6	
	enterprise standards	53	37	
Number of patents applied	751	1396	1644	
Number of new patents	435	951	1153	
Number of technological innovation rewards by national, provincial and ministerial or industrial institutes	25	31	53	

Supply Chain Management

Indexes	2020	2021	2022
Number of suppliers	42,015	51,525	6,4877
Number of annual newly added suppliers	6,742	9,510	16,482
Number of annual suppliers evaluated	11,027	10,093	18,726

Power Generation

Indexes	2020	2021	2022
Consolidated installed capacity in operation (GW)	84.60	109.10	124.71
Proportion of installed capacity of clean energy (%)	95	96	96
Proportion of electricity from clean energy (%)	95	94	95
Gross power generation (TWh)	330.5	363.3	383.8

Note: The above data include overseas power generation and exclude minority equity-based installed capacity and capacity under construction.

Overseas Power Generation

Indexes	2020	2021	2022
Consolidated installed capacity in operation (GW)	9.49	11.04	12.61
Proportion of installed capacity of clean energy (%)	100	100	100
Proportion of electricity from clean energy (%)	100	100	100
Gross power generation (TWh)	35.5	31.3	36.6

Environmental

Value Creation

Indexes	2020	2021	2022
Year-on-year changes in comprehensive energy consumption per RMB 10,000 of output value (comparable price) (%)	-	-	-9.09
Total investment in environmental protection for supporting construction projects (RMB billion)	-	-	2.018
Proportion of new projects with environmental and social impact assessment (%)	100	100	100
Emission reduced through domestic clean energy projects (million tons of CO ₂ equivalent)	232.21	258.75	262.03
Emission reduced through domestic clean energy projects (million tons of standard coal equivalent)	84.90	94.82	98.51

Social

Compliance

Indexes	2020	2021	2022
Proportion of legal review on corporate rules and regulations (%)	100	100	100
Proportion of legal review on corporate economic contracts (%)	100	100	100
Proportion of legal review on significant corporate economic decisions (%)	100	100	100

Employee Responsibility

Indexes	2020	2021	2022
Number of on-duty staff	25,472	28,461	30,163
Coverage of social insurance (%)	100	100	100
Rate of Labor Union Membership (%)	99.6	99.7	100
Paid annual leave per employee (day)	9.5	9.5	9.2
Labor contract coverage (%)	100	100	100
Rate of completed proposals from employee representatives congresses and satisfaction (%)	100	100	100
Percentage of employees trained (%)	100	100	100
Occupational injury occurrence rate (%)	0	0	0
Days lost due to work-related injury (day)	0	0	0
Occupational disease occurrence rate (%)	0	0	0
Coverage of supplementary medical insurance (%)	100	100	100
Proportion of female back to workplace after maternity leave (%)	100	100	100
Employee satisfaction (%)	100	100	100
Employee turnover rate (%)	1.5	1.58	1.34
Coverage rate of health records (%)	100	100	100

Production safety

Indexes	2020	2021	2022
Number of emergency plans	2,307	4,603	4,022
Number of emergency drills	1,525	2,707	2,544
Number of participants in safety training	185,637	195,206	211,410
Investment in workplace safety (RMB million)	619	1,067	1,264
Number of workplace safety accidents	0	0	0
Casualties	0	0	0
Number of major equipment accidents	0	0	0

Community Participation

Indexes	2020	2021	2022
Providing targeted assistance (RMB million)	400	400	400
Number of voluntary service teams	59	59	77
Number of voluntary service bases	187	187	187
Number of registered volunteers	10,360	10,360	1,826

Comprehensive Indexes

Indexes	2020	2021	2022
Total floodwater retention of cascade reservoirs (billion m ³)	37.4	28.8	0
Total days of water replenishment by the Three Gorges Reservoir for middle and lower reaches of the Yangtze River in dry season	164	138	156
Water replenishment amount by the Three Gorges Reservoir for middle and lower reaches of the Yangtze River in dry season (billion m ³)	22.92	22.08	21.78
Volume of goods transported through Three Gorges ship lock (million tons)	137	146.2	156

Contributions to the SDGs

SDGs	CTG's Actions	SDGs	CTG's Actions
	<ul style="list-style-type: none"> Supporting the national targeted assistance strategies Continuing assistance to resettled residents from reservoir areas Aiding Xinjiang, Tibet, and Qinghai Engaging in public welfare 		<ul style="list-style-type: none"> Protecting the interests of resettled residents from reservoir areas concerning life and production Strengthening the localized management of overseas projects
	<ul style="list-style-type: none"> Responses to the rural vitalization strategy Supporting the industrial development Continuing assistance to resettled residents from reservoir areas 		<ul style="list-style-type: none"> Preventing floods and disasters Improving the living environment of communities Actively carrying out ecological governance
	<ul style="list-style-type: none"> Strengthening workplace safety Improving healthcare services 		<ul style="list-style-type: none"> Disposing of wastewater, waste gas and solid waste in accordance with relevant regulations Continuously optimizing the supply chain management process
	<ul style="list-style-type: none"> Carrying out training on corporate culture, professional skills, etc. Supporting educational development 		<ul style="list-style-type: none"> Strengthening capacity of resilience and adaptation to climate change Vigorously developing and utilizing clean energy resources Publicizing the concept of low carbon and environmental protection
	<ul style="list-style-type: none"> Providing equal employment opportunity, and forbidding gender discrimination Creating convenience for lactating employees Organizing health check-ups for women and children 		<ul style="list-style-type: none"> Launching water ecological restoration projects Protecting rare fish species Organizing release activities of Chinese sturgeon and other fish species
	<ul style="list-style-type: none"> Guaranteeing agricultural irrigation water and domestic water Comprehensively promoting the prevention and control of water pollution Building water treatment facilities 		<ul style="list-style-type: none"> Protecting and breeding endemic and rare plants in the Three Gorges area Protecting endemic and rare resource plants in the Yangtze River Basin Actively engaging in cooperation in ecological protection projects in the Yangtze River basin
	<ul style="list-style-type: none"> Expanding the scale of hydropower projects and improving the utilization of water resources Accelerating the development of hydropower, wind and solar power Building multi-energy hybrid bases Vigorously building pumped-storage power stations 		<ul style="list-style-type: none"> Improving Party conduct and upholding integrity Adhering to law-based corporate governance and operation in compliance with laws and regulations Building an authoritative and efficient audit-based supervision system
	<ul style="list-style-type: none"> Respecting and protecting the legitimate rights and interests of employees Paying social insurances on time and in full, and prohibiting forced labor Providing skills training in communities Creating jobs for communities 		<ul style="list-style-type: none"> Building international cooperation platforms Promoting international energy cooperation along the Belt and Road Developing a coordination mechanism between enterprises and local organizations for the well-coordinated environmental conservation of the Yangtze River
	<ul style="list-style-type: none"> Providing safe and fairly priced clean energy for countries along the Belt and Road Supporting infrastructure development worldwide Strengthening technological innovation and protecting intellectual property rights 		

Benchmarking with GRI Standards

Report Contents	GRI Standards	Report Contents	GRI Standards
Message from the Chairman	2-14	Nice - Drawing a Blueprint of Harmony	
An Interview with the President	2-14,2-15,2-16	Supporting Employee Growth	2-7,2-19,201-3,401-2,404-1,404-2,405-1
About CTG	2-1,2-2,2-3,2-5,2-6,2-7,2-18	Offering Targeted Assistance	203-1,413-1
CSR Spotlight		Providing All-Round Assistance in the Reservoir Areas	203-1,413-1
Forging Ahead Determinedly with the Instructions in Mind and Composing a New Chapter of Our "Six Roles"	3-2,201-2,203-1,203-2,304-1,304-2,304-3,305-5,414-1,414-2,415-1,416-1	Continuously Aiding Xinjiang, Tibet and Qinghai	203-1,413-1
Governance - Strengthening Value Creation		Engaging in Public Welfare Undertakings	413-1
Improving Corporate Governance	2-9,2-10,2-11,2-12,2-16,2-17,2-18,405-1	Sustainability Management	
Reinforcing Lean Management	2-6,2-23,2-27,308-1,308-2,403-1,403-2,403-3,403-5,403-6,403-7,403-8,403-10	CSR Strategy	2-22
Reformation - Fostering Endogenous Growth Momentum		CSR Operating Mechanism	2-17,2-22
Deepening Reform and Development	2-9,2-17	CSR Brand Projects	—
Strengthening Technological Innovation	203-1,203-2	CSR Communication	2-29
Facilitating Digital Transformation	203-1	Outlook for 2023	—
Energy - Consolidating the Strategic Foundation		Appendixes	
Consolidating the Hydropower Sector as the Ballast	302-4,305-5	Key Performance Indicators	1-1,2-4,305-1,305-2,305-2,401-1,403-2,403-9,404-1
Expanding Renewable Energy Growth Poles	302-4,305-5	Contributions to the SDGs	—
Upgrading International Operations	413-1	Benchmarking with GRI Standards	—
Ecological Environment - Remaining True to Our Commitment		Expert Opinions	2-5
Promoting the Well-Coordinated Environmental Conservation of the Yangtze River	304-1,304-2,304-3	Reader Feedback	2-3
Contributing to China's Carbon Peaking and Carbon Neutrality Goals	201-2	About The Report	2-3,2-29,3-1,3-2,3-3
Saving Energy and Natural Resources	413-1		
Protecting Biodiversity	304-1,304-2,304-3		

Expert Opinions

The China Three Gorges Corporation Sustainability Report 2022 (hereinafter referred to as “the Report”) is the 13th report of its kind published by CTG. The Report provides a comprehensive overview of CTG’s practices and highlight performance in fulfilling its economic, environmental, and social responsibilities, presenting its dedication to becoming a model of sustainable development among world-class enterprises.

Setting up creative report framework with informative content

The framework of the Report draws inspiration from CTG’s brand motto – “Empowering a greener world.” Based on the “GREEN” framework, the Report seamlessly connects its contents and divides it into five chapters: Governance, Reformation, Energy, Ecological Environment, and Nice. These chapters comprehensively showcase CTG’s unwavering commitment to its responsibilities as a central SOE, as well as its resolute attitude and actions towards creating economic, social, and environmental value.

Focusing on hot topics and CSR highlights

The Report focuses on the “Six Roles” strategic development positioning of CTG. It provides a systematic summary of the efforts of CTG over the past five years to fulfill its responsibilities and fully play its “Six Roles”. The Report also highlights CTG’s actions and achievements in its pursuit to a world-class developer of clean energy and a leading company in environmental protection in China. The “CSR Spotlight” section is presented in a scroll format, introducing CTG’s CSR highlights at key points and presenting a five-year-long CSR journey. The big data systematically presents CTG’s CSR performance in playing its “Six Roles” over the past five years, and detailed data is used to showcase CTG’s outstanding contributions in the field of CSR.

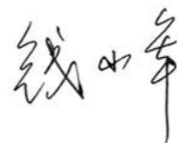
Getting closer to stakeholders through diverse forms

The Report is written in a clear and concise manner, providing detailed and comprehensive information. It includes comparable performance data, illustrative case studies, and informative visuals, allowing readers to gain a deeper understanding of CTG’s values and business development. In addition, the Report incorporates feedback from stakeholders, and their approachable wording enhances the inclusiveness and credibility of the Report.

Benchmarking against international and domestic standards to fully enhance CSR management

The Report is prepared in accordance with the GRI Standards and provides a comprehensive disclosure of CTG’s sustainability strategy and management. In the materiality analysis, CTG identifies topics that are important to its stakeholders and has responded to them in a professional manner and from an international perspective. In addition, the “Contributions to the SDGs” section embodies its responses to the UN 2030 SDGs, showcases CTG’s sustainability management and actions by presenting CTG’s practices and actions.

The year 2023 marks the 30th anniversary of CTG’s establishment. I hope that CTG will continue to shoulder more social responsibilities, and create greater economic, social, and environmental value, contributing to the sustainable development of the world.



Qian Xiaojun

Associate Dean of Academics, Schwarzman Scholars, Director of the Research Center for Green Economy and Sustainable Development, Tsinghua University

Reader Feedback

Dear Reader:

Thank you for reading the *China Three Gorges Corporation Sustainability Report 2022*. We hope that the Report can provide more valuable information to you and other stakeholders and better meet your needs while promoting our improvement of comprehensive management capabilities and work performance, as well as CSR abilities. Hence, we sincerely invite you to give some valuable feedback on the Report and send us by the following methods.

Fax: 027-85086200

Email: szbg@ctg.com.cn

Address: No. 1, Liuhe Road, Jiang'an District, Wuhan, Hubei Province

Post code:430010

1 . What is your identity from the perspective of stakeholder?

- Investor Resettled residents from reservoir areas Community Employee Customer
 Environment Partner Provinces and cities in the Yangtze River Basin Media Others_____

2 . Your overall impression of the Report:

- Very good Good Fair Poor Very poor

3 . How about the information disclosure, accuracy, completeness, layout design, and readability of the Report:

- Information Disclosure: Very good Good Fair Poor Very poor
 Accuracy: Very good Good Fair Poor Very poor
 Completeness: Very good Good Fair Poor Very poor
 Readability: Very good Good Fair Poor Very poor
 Layout design: Very good Good Fair Poor Very poor

4 . What are your opinions and suggestions on CTG’s efforts to promote sustainable development and our preparation of sustainability reports?

About the Report

Reporting Period

The Report covers the period from January 1, 2022 to December 31, 2022 and also includes additional content and information dated back to the previous years.

Note

For the purpose of convenient statement and reading, China Three Gorges Corporation is referred to as “CTG”, “the Corporation” and “we” in the Report.

Reporting Frequency

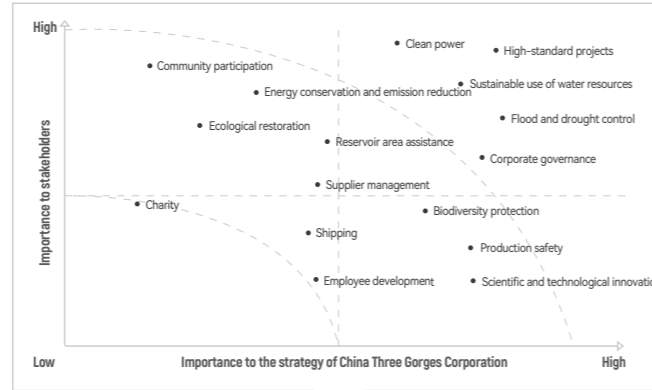
The Report is released annually, and this is the 13th sustainability report released by CTG since 2010.

Materiality Analysis

Recognition

Main sources	Topics
<ul style="list-style-type: none"> The proposals of the democratic life meetings for employees and the employee representatives congress The attentions from clients like power grid enterprises The feedbacks on the official CTG website The collection of opinions of resettled residents The communication with local governments and the signing of strategic cooperation agreements The feedbacks at the communication meetings for suppliers The collection of opinions of communities The environmental impact assessment The opinions from such NGOs as WWF and TNC The seminars in the hydropower industry The feedbacks from hydropower experts The participation in the formulation of industrial standards The participation in international and industrial organizations 	<ul style="list-style-type: none"> Development strategy Corporate governance International operation High-standard projects Production safety Community participation Supplier management Responsible procurement Responses to climate change Employee rights protection Employee care Human rights protection Law observance and compliance Transparent operations Employee development Energy conservation and emission reduction Biodiversity protection Sustainable use of water resources Ecological restoration Flood and drought control Shipping Clean power Reservoir area assistance Scientific and technological innovation Environment management Industrial standard systems Charity

Prioritization



Verification

Internal	External
<ul style="list-style-type: none"> Review by social responsibility management institutions Review by related departments and subordinate companies Review and approval by company leaders 	<ul style="list-style-type: none"> Participation of NGOs Participation of third-party consulting institutions Report rating Communication meetings for stakeholders

Reference Standards/Documents

The Report is compiled in accordance with *ISO 26000: Guidance on Social Responsibility (2010)*, the *Sustainability Reporting Standards (GRI Standards)* by the *Global Reporting Initiative (GRI)*, *GB/T 36001-2015: Guidance on Social Responsibility Reporting*, and *Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0)* by the Chinese Academy of Social Sciences.

Reporting Scope

The Report covers CTG as a whole (for organizational structure, please see the section “About CTG”).

Data Sources

The data cited in the Report derives from the official documents and statistics reports of 2022. Some data from previous years have been restated.

Reliability Assurance

Information disclosed in the Report is true, reliable, and timely and is aligned with CTG’s sustainability strategy. The Report addresses the major concerns of the stakeholders, and also summarizes CTG’s corporate social responsibility (CSR) performance.

Interpretation of the Report Theme

Taking the motto of CTG, “Empowering a greener world”, as the main theme and the English word ‘GREEN’ as the creativity source, the Report is consisted of five chapters: Governance, Reformation, Energy, Ecological Environment, and Nice. These chapters highlight our two-tracked approach for advancing clean energy development and the Yangtze River conservation, reflect the brand culture of CTG. Featured by the obligatory mission, they manifest that CTG plans its development from the perspective of sustainable development that advocates the harmonious coexistence between man and nature.

Report Access

The Report is published in Chinese and English, and available in both printed and electronic versions. For printed copies, please email to szbg@ctg.com.cn or call 86-27-85086881. For the electronic copy, please visit our website: www.ctg.com.cn, or scan the QR code on the back cover of the printed version to download.

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