万科公益基金会
VANKE FOUNDATION

TEAM

SEE
北京市企业家环保基金会

2020

BUSINESS CLIMATE ACTION CASES

ACKNOWLEDGEMENT

We thank the following partners for recommending corporate cases: China Federation of Industrial Economics, Carbonstop, SynTao Sustainability Solution, and China Association of Building Energy Efficiency.
We also thank Vanke Foundation for the support.

DISCLAIMER

The cases included in this collection is provided or recommended by members of CBCA. The CBCA Secretariat compiled and partially translated the cases, and is not responsible for the accuracy of the information and data in the cases.

For further information, please contact CBCA@cteam.org, +86 10 62561869.

EDITOR'S NOTE

2020 was a year of uncertainty. The COVID-19 pandemic has unsettled the global socioeconomic order and postponed the 26th UN Climate Change Conference of the Parties (COP26), where parties were scheduled to submit new Nationally Determined Contributions. But the pandemic has made most nations to prioritize economic recovery over climate change targets.

Corporate climate actions were also faced with various challenges. Some enterprises had to postpone or cut their planned energy saving and emission reduction investments to ensure cash flow; some continued to optimize operational costs through energy saving and emission reduction measures; and some pursued business innovation to provide climate change solutions. Here we present a collection of 14 cases, featuring corporate climate actions of different scales, in the fields of carbon management, clean energy, green buildings, green finance, green supply chain and green lifestyles.

2020 was nevertheless a year of long-term certainty, unfolding China's era of "carbon neutrality". The national government's carbon peaking and carbon neutrality "30 · 60" targets have released strong signals of industrial evolution, and the emission reduction tasks will certainly be distributed to individual companies. An enterprise that takes the lead in setting carbon reduction goal in line with the national "30 · 60" strategy will gain market advantage by enabling internal transformation and reshaping its core competitiveness.

We look forward to more companies joining in carbon accounting, carbon verification, and carbon reduction target-setting; we also expect more corporate cases featuring Scope I, II and III emission reduction achievements in 2021. China Business Climate Action (CBCA) will continue to closely work with partners and stakeholders to provide capacity building support to corporate climate action and sustainable development, and to showcase climate leadership of Chinese enterprises at COP26.

At a time when the pandemic and the climate crisis are intertwined, only a green path to economic recovery and growth can lead us to a "net-zero" future.

China Business Climate Action Secretariat

March 2021

TABLE OF

CONTENTS

Beijing Vevolution Technology Limited 1

NANOxARCH® 3

Feimayi 5

State Grid Jiaxing Power Supply Company 7

State Grid Taizhou Power Supply Company 9

JD.com 11

JA Solar 13

LONGi 15

Landsea Group 17

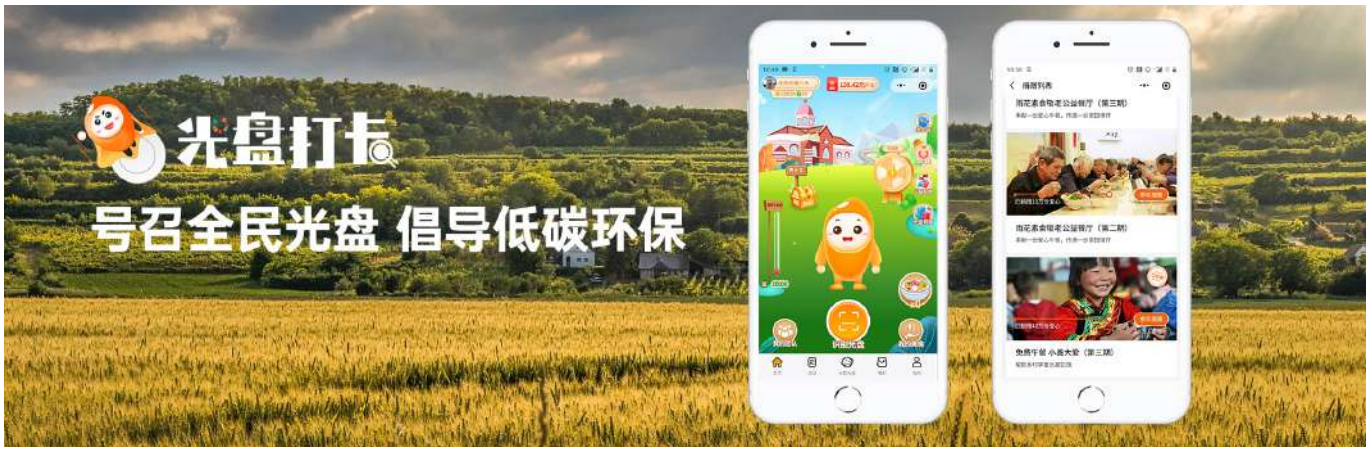
L'Oréal China 19

Vanke Group 21

China Construction Bank Guangdong Branch 23

China Construction Bank Shanghai Branch 25

China Association of Building Energy Efficiency 27



BEIJING VEVOLUTION TECHNOLOGY LIMITED

CLEARPLATE® - AI REDUCES FOOD WASTE

PROJECT OVERVIEW

A third of the world's food is wasted each year (1.3 billion tons). Food waste has seriously aggravated food security problem and brought heavy environmental costs. The carbon footprint of global food waste is equivalent to 3.3 billion tons of CO2 emitted into the atmosphere each year, accounting for 8% of global greenhouse gas emissions【1】.

To respond to this major challenge, Beijing Vevolution Technology Limited developed and implemented ClearPlate® App to encourage people to uphold the virtue of cherishing food and low-carbon lifestyle. After meal, users could take picture of clear plates through the App and will get credits if AI identifies no food was wasted. These credits can be used to exchange gifts or donate charity meals.

ClearPlate® was launched in October 2018, and it has developed rapidly under the momentum that the society actively responds to the instruction of Secretary General Xi Jinping to "stop food waste". To date, it has covered all over the country and has 4 million users and nearly 10,000 settled institutions. Meanwhile, cooperative foundations, companies and us have donated nearly 1 million yuan to “Zero hunger for Ethiopian children”, “Free meals for the elders in need” and other charity projects.

According to the "Accounting Report on Carbon Emission Reduction for ClearPlate®" jointly issued by Carbonstop and ClearPlate®, the remaining food per person per meal is about 38g, and the carbon emission reduction of one clear-plate is 147gCO2e. At present, 36 million clear-plates have been completed, which is equivalent to reducing food waste by 1,400 tons and carbon emissions by 5,000 tons.

【1】 Pan Jie, Ge Daoshun, "Suggestions for Establishing a Long-term Mechanism to Eliminate Food Waste".

PROJECT OUTCOME

- Promoted 5,000 tons of carbon emissions reduction.
- Contributed nearly 1 million yuan in matching gifts.
- The Chinese Academy of Social Sciences pilot project successfully achieved a 30% reduction in food waste.
- The "Clear-Your-Plate Challenge of Hundred Cities and Thousand Colleges" won the "Mother River Award", the highest award in the field of ecology and environmental protection for Chinese youth, issued by the Central Committee of the Communist Youth League.

COMPANY PROFILE

Beijing Vevolution Technology Limited was established in May 2018. The company's vision is to build a community of common destiny on the dining table, and its mission is to call for universal clear-plate, advocate low carbon and environmental protection, promote the spirit of philanthropy, and purify the social ecology. It focuses on the technology application of AI and mobile Internet in the field of ecological and environmental protection, and provides diversified products and services for social issues, making our society more harmonious and making our country more beautiful. The company is a Zhongguancun high-tech enterprise, a Beijing social enterprise, and gets listed on Beijing New Fourth Board (code: 300089). Besides, it has been officially incorporated into “Beautiful China Youth Action" program held by the Central Committee of the Communist Youth League.

新素代科技
VEVOLUTION TECH

PROJECT HIGHLIGHTS

The "2020 Restarts from Clearing Your Plate" event initiated by the Central Committee of the Communist Youth League and the China Environmental Protection Foundation, attracted more than 1,000 colleges and universities nationwide, and the Weibo topic got more than 110 million views.

According to the survey after the "Clear-Your-Plate Challenge of Hundred Cities and Thousand Colleges", more than 80% of students expressed their willingness to continue to clear their plates after the Challenge.

PROJECT IMPLEMENTATION

The food waste problem is increasingly serious. The direct cause is the sufficient food supply and the rising income, and the fundamental cause is the weak awareness of environmental protection and philanthropy. ClearPlate® starts from alleviating food waste, conduces to source reduction of kitchen waste, and gradually cultivates the concept of environmental protection from daily dining behaviors.

1. Innovative model

ClearPlate® gives new connotations to the campaign of Clear Your Plate with an innovative model of "technology + philanthropy + rewards". In this process, users not only participate in philanthropy, but also redeem for high-quality products; cooperative enterprises obtain precise promotion channels, and improve brand image; charity projects receive matching donations, and expand their influence. Users, cooperative enterprises and charity organizations achieve the multi-win situation, and a good cycle of self-interest and altruism is realized. Compared with traditional ways, such as posters and slogans, the innovative model has greatly increased public participation, stimulated public enthusiasm, aroused one's internal self-discipline with external incentives and encouragement, and launched a new consumption campaign on saving food to promote moderate, low-carbon and fashionable lifestyles and let the traditional virtues of diligence and thrift gain new vitality in the new era.

2. AI

The technology core of ClearPlate® is a set of AI algorithms running in the cloud, which can classify tableware images and identify food waste. Its classifier is trained by an eighteen-layer residual network model: the first classifier is responsible for classifying tableware; the second classifier determines whether it is a clear plate. This has no precedent in the world, and cannot be realized by open source algorithms. In its recognition system, the intelligent algorithm of fuzzy control is used to process computer vision, that is, it simulates the comprehensive reasoning of humans to process fuzzy information that is difficult to solve by conventional methods, so as to deal with those picture information which is complicated, non-linear, or even impossible to establish accurate digital model effectively and precisely.

Behind the convenient function of ClearPlate®, there are complex algorithms and a lot of hard work. In order to make the system smarter, the founding team traveled to more than ten cities across the country over six months and collected more than 100,000 samples to improve the accuracy of recognition. At present, the number of samples has reached millions, and the team is iterating and upgrading the algorithm constantly.

3. Typical applications

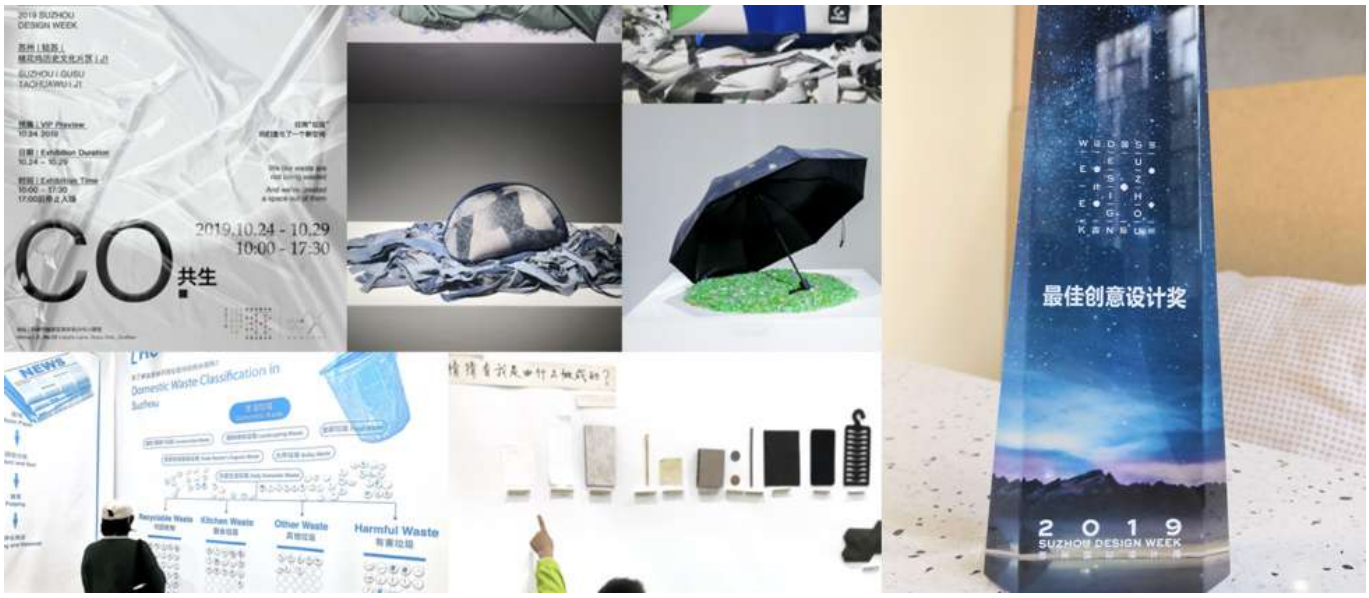
With its unique group design and powerful data management function, ClearPlate® solves the problems of complex organization and difficult supervision in the campaign of Clear Your Plate, provides targeted overall solutions for B-side users, and becomes a sharing and co-governance platform with comprehensive effects.

- In April 2019, ClearPlate® and the Chinese Academy of Social Sciences (CASS) co-organized the "Clear Your Plate, CASS is in Action" campaign. Before the event, the CASS cafeteria generated four to five buckets of kitchen waste every day. After ClearPlate® customized the cafeteria applet and background management system for CASS, the daily kitchen waste was reduced to two to three buckets, and the overall kitchen waste achieved a 30% reduction within two months.
- In December 2019, ClearPlate® and ZTE Group cooperated to implement the "ZTE Clear Your Plate Challenge" in the Group's canteen. More than 1,600 employees participated, and the kitchen waste was reduced by 12% within a month.

IMPACT & SUSTAINABILITY

ClearPlate® has been featured in a number of media reports including China Youth Daily, China Discipline Inspection Daily, Beijing Evening News, BTV, and Xinhua News Agency. It won many honors such as the champion of UNDP Youth-Change-Maker Challenge, the Chinese Food Science and Technology Progress Award recognized by the Science and Technology Ministry, and the Zhongguancun High-tech Enterprise. In December 2019, ClearPlate® was officially signed as a partner of “Beautiful China Youth Action" program held by the Central Committee of the Communist Youth League. In the future, ClearPlate® will continue to influence tens of millions of college students and become an important platform for the promotion and education of ecological civilization. In September 2020, Liu Jichen, founder of ClearPlate®, became China's first SDGs Young Leader. ClearPlate® becomes known to the world.

As the world's first product based on identifying clear plate through AI to alleviate food waste, the short-term plan of ClearPlate® is to cover most of the colleges and districts across the country, forming a multi-wheel-driven governance pattern of "government + philanthropy + enterprise", making the platform to a new level. The long-term plan is to cover more countries and regions, and contribute Chinese wisdom and Chinese solutions to solving global food security issues.



NANOXARCH®

2019 SUZHOU DESIGN WEEK - SUSTAINABILITY THEMED EXHIBITION

PROJECT OVERVIEW

As China's first social innovation venture that focuses on sustainable material design, NANOxARCH® was invited in September 2019 to be responsible for Suzhou International Design Week's sustainability section, given a long-lasting issue that large amount of waste would be generated in exhibition scenarios. In response to the regulations of waste classification of domestic waste in Suzhou, NANOxARCH® utilized 100% waste upcycled/recycled materials, to renovate a 150m2 exhibition space and create a sustainable exhibition and relevant activities focused on plastic waste.

All materials used in the exhibition hall, with a small exception of metal auxiliary materials, were waste recycled/upcycled materials and products designed and produced in China. Around 1/3 of materials came from waste produced during last year's Design Week exhibition, another 1/3 of materials from waste produced locally in Suzhou, and the remaining 1/3 of materials from recycled waste in Jiangsu province. The total carbon emission reduction is estimated to be more than 5 tons, with an average reduction rate of at least 33.3 kg per square meter.

Under the theme of "Plastic-Life Symbiosis (Re·Co Sustainability Odyssey)", the exhibition was divided into 5 areas, with "Waste-Material-Product-Space" as the thread of continuity. The exhibition demonstrated the entire recycling process involving various types of waste and how to apply them in products and spaces. This is the first known sustainability themed exhibition during Suzhou Design Week, it is also China's first-known public space made from 100% waste.

PROJECT OUTCOME

- China's first exhibition space built with only local recycled waste materials. The overall estimated carbon emission reduction was over 5 tons, with an average reduction rate of at least 33.3 kg per square meter, compared to traditional renovation methods.
- The exhibition used more than 50 types of recycled waste materials, which consisted mainly of plastic waste, but also construction waste, agricultural waste, textile waste, organic waste, paper waste, and electronic waste. A total of 25 recycled plastic products were displayed, as well as 3 sets of sustainable furniture, and 2 sets of art installations made from recycled waste.
- Received exclusive coverage from the Suzhou Government's social media and news account "Suzhou Waste Classification". The exhibition also won the "Best Creative Design Award" for the 2019 Suzhou Design Week.

COMPANY PROFILE

NANOxARCH® (材料乘以设计 ™) is China's first and only social innovation venture focusing on sustainable material design. We help clients accelerate cost-effective sustainable innovations to eventually achieve an intersectional win-win of "brand + environment + economy" from the perspective of material sustainablization.

NANOxARCH® has over 3000 types of sustainable materials and product choices in its sustainable materials database, which includes materials and furniture products developed by NANOxARCH and its 50+ local suppliers in China, coupled with a Material "Donor" platform to promote the circulation of recyclable waste.

PROJECT HIGHLIGHTS

"NANOxARCH® put on an exhibition that was both original and sustainable at the 2019 Suzhou Design Week, covering everything from products, installations, content, to the ways in which the spaces are built and the materials used. We were pleased to witness such a bold innovation, coinciding with a proactive and pragmatic approach to sustainability."

- Suzhou Design Week

PROJECT IMPLEMENTATION

- Exhibition Space Built with 100% Sustainable Materials: All the installation materials within the space were sustainable materials, including waste leftover from past Suzhou Design Week exhibitions, local waste from Suzhou, and a variety of waste recycled materials produced in Jiangsu Province. For example, part of the flooring material was made with recycled wheat straw from farms and leftover bamboo offcuts from factories. The material contains 0 formaldehyde and achieves the highest fire safety standards. Compared with traditional wood, this wood replacement material does not generate extra carbon emission, in fact, it can reduce carbon emission by 1.66 ton per cubic meter. It comes from NANOxARCH®'s own "Sustainable Material Database (China)", which includes over 3000+ types of sustainable materials, all designed and made locally in China.
- 100% Plastic Waste Art Installation: By using 20 meters of used fishing nets, 490 used plastic barrels, and 18000 used plastic bottles, we built an art installation by creating an "ocean" that was 100% plastic. Through this theme, we hoped to demonstrate to the public the threat of plastic pollution to oceans.
- Waste Recycle/Upcycle Workshop Series: NANOxARCH® created a series of 3 sustainable workshops under the theme of "Local Recycling," including materials like used fire hose + plastic boards, used potato chip bags/plastic bags, and donated clothing. By utilizing common waste found in homes, offices, and communities generated within Suzhou and the local province of Jiangsu, participants are taught to transform waste into creative and aesthetic objects through DIY methods. The goal was to increase the public's awareness on the importance of recycling and influence people's sustainable values through hands-on experience.
- Sustainable Pop-up Shop: In order to better showcase China's sustainable product development to the public, NANOxARCH® selected over 20 products made from recycled materials. The products demonstrated sustainable material's ability to replace traditional materials, but also China's original design and affordable prices (between 10～300 RMB), which makes sustainable products more competitive in the market.
- The Exhibit "Adoption" Program: In all short-term exhibition scenarios, where the waste will go after the exhibition ends is always a question. In order to prevent the installations and materials from going to the trash, which would go against the original intent of sustainability, NANOxARCH® set up an Exhibit "Adoption" Program. Schools, communities, and organizations who wished to "adopt" installations or items could simply scan a QR code and fill out an application form. The installations and items were then directly sent to the "adopter's" location at the end of the exhibition.
- The "Plastic Life Symbiosis (Re·Co)," exhibition won the 2019 Suzhou Design Week's "Best Creative Design" Award. The exhibition space built as China's first-known public space made from 100% waste materials became the only exhibition to be preserved in the Suzhou's historical cultural area Taohuawu.

China's first-known public space made from 100% waste materials

NXA Plastic Art Installation

Waste Recycle/Upcycle Workshop

IMPACT & SUSTAINABILITY

- All materials used in the exhibition hall, with a small exception of metal auxiliary materials, were recycled waste materials and products designed and produced in China. Around 1/3 of materials came from waste produced during last year's Design Week exhibition, another 1/3 of materials from waste produced locally in Suzhou, and the remaining 1/3 of materials from recycled waste mostly produced in Jiangsu province, in order to maximize the reduction of carbon emissions from transportation. These materials and the products made from them constructed the entire exhibition space, complemented with a sustainability exhibit, workshops, pop-up shops etc. It is the first of its kind in China.
- Launched the first Exhibit "Adoption" Program in China, which later developed into the Material "Donor" platform to promote the circulation of recyclable waste for exhibition/event/decoration/relocation scenarios.
- Ongoing discussions with local environmental authorities to use the venue as one of the sustainable education bases in Suzhou.

FEIMAYI

UNIVERSITY GREEN RECYCLING CLOTHING DONATION CAMPAIGN

PROJECT OVERVIEW

The university green-recycling campaign is a yearly environmental protection-themed event launched by Feimayi. Taking the form of green graduation season, university public benefit forest, green clothing hub and more, the initiative aims at encouraging college students to recycle unwanted clothes for the sake of environmental protection. The event has been held for three years since its inception in 2018, covering more than 300 colleges and universities across China, with nearly 100,000 participants.

In August 2020, Feimayi launched a university public welfare forestation initiative aiming at recycling old clothes and planting trees to help save the Minqin desert oasis. As of December, the initiative has recycled 17,000KG of pre-owned clothes and achieved a carbon reduction of 90,950KG, which can fix 17,000 square meters of sand in Minqin (10KG of pre-owned clothes = 1 pike tree = 10 square meters of sand fixing). All recycled clothing will be processed in a combined environmental protection plus public welfare approach to establish a natural closed loop of the two elements, reducing pollution while helping raise the public welfare and environmental awareness of college students.

Over the past three years, Feimayi has collected 157.5 tons of pre-owned clothes through its green clothing donation campaign, reducing carbon emissions by 842.63 tons, equivalent to planting 47,074 pike trees (based on Ant Forest's 17,900g of emission reduction for every 1 pike tree planted).

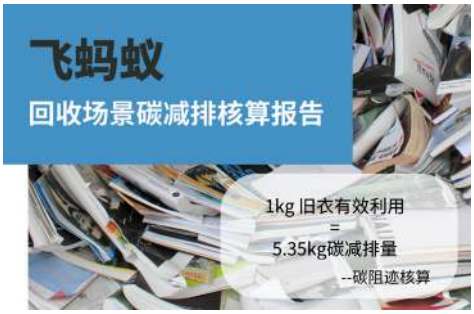
Various media outlets have reported on the Feimayi graduation season event, including Youth Daily, Shanghai Morning Post, Liberation Daily - Shangguan, Xinhua News App, People's Daily Shanghai station, Shanghai Education TV.

*Based on calculations by Carbonstop: 5.35KG of carbon emissions can be reduced for every 1KG of pre-owned clothes effectively used.

PROJECT OUTCOME

2018-2020 Feimayi college green clothing donation campaign:

- A total of 157.5 tons of used clothes are recycled, with a cumulative reduction of 842.63 tons of carbon emissions;
- Donated 20,000 items of clothing to nearly 100 impoverished mountainous areas in China over three years;
- Green Graduation Season won the honorary title of "Shencheng River Guardian 2019" sponsored by Youth Daily and Alibaba Daily Positive Energy;



COMPANY PROFILE

Established in 2014, Shanghai Shanyi Network Technology Co., Ltd. (Feimayi), is a platform that advocates eco-friendly disposal of unwanted items. It is the first online platform for the comprehensive disposal of pre-owned clothes in China under the Internet + innovation model featuring O2O sustainable environmental protection and public welfare, with a view to advocating the philosophy of "Protect The Environment For The World, Do Public Good For You". The platform already covers 300 cities nationwide for free doorstep collections. Feimayi works with logistic providers, public welfare organizations, recycling factories and exporter-manufacturers to establish a recycling, handling and disposal system for pre-owned clothes, under which system the clothes are disposed of in an "eco-friendly and public-benefiting" way, enabling an endless loop of limited resources.

Feimayi is a member organization of the China Resource Recycling Association, a member of the Technology Innovation Strategic Alliance for Waste Textiles Comprehensive Utilization Industry, a partner practitioner organization of the Shanghai Energy Conservation and Emission Reduction Center, the Shanghai Public Welfare Base of Shanghai Social Organization Administration and a clothing collection partner of Xianyu, Alipay, Zhuanzhuan, and Xiangwushuo.

PROJECT HIGHLIGHTS

Ma Yun, founder of Feimayi, "It is our goal at Feimayi to effectively solve the problem of pre-owned clothes on campus through a green and public-benefiting approach, to maximize the value of clothing. And we are also constantly exploring more innovative Internet+ models, such as launching a national college green clothing hub alliance to enable students to 'foster public welfare by donating one item of clothing' to our offline collection sites, and to enable O2O sustainable eco-friendly public welfare."

A participant of the graduation season recycling campaign: "Every year during the graduation season, there are a lot of clothes that are not properly handled, and they are thrown away at will, causing great waste and environmental pollution. Feimayi green graduation season is both eco-minded and public benefiting, contributing to the green and low carbon movement with solid actions, making it a very worthy cause for my graduation this year!"

PROJECT IMPLEMENTATION

College students are the dominant force in building a sustainable future for environmental protection. As such, Feimayi has planned a series of clothes-donating activities for the college community under the theme of “Ode to youth environmentalists, with loving care from pre-owned clothing”. It has been brought to our attention the demand of college students for recycling unwanted clothing items, especially during the graduation season when the un-recycled clothing items could end up as pollutants and wasted resources. Hence, the Feimayi college green clothing donation action covers the graduation season, the college public welfare forestation, and the green clothing hub's daily pre-owned clothes recycling, in the hope that through the ongoing green clothing donation campaign, millions of college students are provided a channel for eco-friendly ways to dispose of their unwanted clothes while doing public good. The initiative is also expected to inject new environmental protection and public welfare energy into the recycling of old clothing, calling on students to take solid action to foster environmental protection and public welfare causes.

As the organizer of the campaign, the Feimayi green recycling platform not only issued a green initiative to college students, but also provided them with an "green with ease, public welfare from small things" way to declutter. The best clothing collecting team will be awarded a number of honors, such as Minqin Public Welfare Forest naming rights, environmental protection incentive cash reward, and the title of university public welfare partner.

In addition to planting trees in Minqin through "recycling old clothes for public welfare", the recycled clothing items will be sorted with meticulous care,

- Some of the items, especially winter clothing, will be donated to children in remote and impoverished areas.
- Some will be used for a tailored campaign to help physically impaired individuals finding employment;
- Some of the clothes below donation standards will be used for recycling, to establish a natural loop between environmental protection and public welfare.

This year's college green clothing donation campaign has seen its collection efforts constricted by the Covid-19 pandemic. Therefore, Feimayi had launched online collection under the theme of "cloud-based graduation season", and pushed back the schedule to coincide with the start of the spring semester in universities nationwide. And once the offline collection resumed in the fall semester, the "Clothing for Sapling" forestation campaign was launched in September, where the planting of saplings can be claimed through clothes recycling.

For university teams collecting more than 3500KG of clothes, a public welfare forest (666 square meters, with a capacity for about 250 pike trees) can be named in their honor;

For collections between 500KG and 3500KG, it will be jointly named with the university.

Teams that have less than 500KG will have one pike tree planted in the Feimayi public welfare forest for every 10KG collected.

Data of clothing collection and emission reduction for Feimayi's college green clothing donation campaign (2018-2020) are as follows:

Content	Total clothing collection 2018/KG	Total clothing collection 2019/KG	Total clothing collection 2020/KG	Total/KG
Green graduation season	10500	76000	11000	97500
University green clothing hub	8000	25000	10000	43000
College public welfare forest	To be launched	To be launched	17000	17000
Total weight/KG	18500	101000	38000	157500
Carbon emission reduction	98975	540350	203300	842625

(Overall clothing collection in 2020 decreased due to offline collection challenges posed by the Covid-19 pandemic.)

IMPACT & SUSTAINABILITY

The Feimayi college green clothing donation campaign is tailored to the college community to address the serious waste of pre-owned clothes and the growing demand of students for environmental protection and public welfare. The campaign is presented through fun and inspiring multi-scenario contents, such as the clothes donation contest, public welfare forest naming rights, making cushions out of recycled clothing for stray cats and dogs, among other themes. The team-based interactive relay format gives clothes recycling more meaning and enhances the team's sense of honor, instilling more positive energy to clothes recycling.

Years of promotional efforts delivered through the campaign has raised students' awareness of environmental protection, who went from wantonly discarding unwanted clothes to recycling them through the graduation season and green clothing hubs. The number of schools and participanting students of the campaign has increased progressively year on year, from about 70 colleges in 2018 to over 200 institutions. The collected clothing has also increased significantly in volume, from an average of about 200KG per school to an average of 500KG per school.

The Feimayi college green clothing donation campaign runs throughout the year, providing a convenient mean for students to dispose of their unwanted clothes in an eco-friendly way. The campaign has become an environmental protection and public welfare fixture on Feimayi' calendar, and is expected to continue on long afterwards. In addition to the recycling of clothing, there are plans to add more recycling categories, such as the recycling of unwanted books to address the mountains of books left behind by college students. And there are also plans to give lectures on minimalist living and other environmental protection and recycling topics for universities. The goal is to continuously advocate for environmental protection and low-carbon emissions, and contribute to improving the climate and making our planet earth a better habitat for all, together.

STATE GRID JIAXING POWER SUPPLY COMPANY

"INTELLIGENT SHORE POWER" FACILITIES FOR INLAND RIVER PORTS

PROJECT OVERVIEW

The traditional method of supplying power from burning diesel once the vessels are berthed at ports has heavily polluted the ports and their surrounding environment. Jiaxing has long dedicated itself to building a "accessible, efficient, safe and green" inland waterway shipping system and vigorously promoted energy conservation and emission reduction in the shipping industry. In 2016, State Grid Jiaxing Power Supply Company entered into a strategic partnership agreement with State Grid Zhejiang Comprehensive Energy Service Co., Ltd. and Jiaxing's municipal port authority,to develop smart shore power in the Luhuadang offshore services area (chosen particularly for its huge throughput and location at the intersection of waterways), with a view to building the first standardized shore power system for inland waterway in the province. The success of the project includes a set of standardized inland waterway shore power model that can be rolled out in other locations.

Between 2017-2020, the company continued to optimize its shore power technology, building on the demonstration project, and constructed shore power facilities in several anchor service areas and inland river ports within the Jiaxing navigation zone, expanding the coverage of shore power in Jiaxing City's ports and becoming the first to achieve full citywide coverage of shore power in the Beijing-Hangzhou Grand Canal Region.

Jiaxing registered a shore power usage in 2020 of 184,500 kWh, which is equivalent to having reduced the emissions of 414.9 tons of carbon dioxide, 2.7 tons of sulfur oxide, 1.8 tons of nitrogen oxide, 0.9 tons of particulate pollutants and 751,500 cubic meters of total smoke exhaust.

The construction and launch of "intelligent shore power" facilities generally eliminated the emission of harmful gases and noise pollution caused by the operation of self-provided generator units while vessels are berthed at ports, and ended the history of non-stop fuel oil [burning] even with vessels stopped at ports, making zero inland river emissions a genuine reality.

PROJECT OUTCOME

- As of the end of 2020, Jiaxing Luhuadang offshore service area has achieved a total of 73,500 kWh of power substitution, equivalent to reducing fuel consumption by about 24.56 tons and carbon dioxide emission by 165.2 tons.
- As of 2020, 99 sets of inland waterway low-voltage shore power facilities with a capacity of 1,584 kilowatts have been completed in Jiaxing.
- Jiaxing registered a shore power usage in 2020 of 184,500 kWh, which is equivalent to having reduced the emissions of 414.9 tons of carbon dioxide, 2.7 tons of sulfur oxide, 1.8 tons of nitrogen oxide, 0.9 tons of particulate pollutants and 751,500 cubic meters of total smoke exhaust.

COMPANY PROFILE

State Grid Jiaxing Power Supply Company is a major power supplier governed by State Grid Zhejiang Electric Power Co. Ltd., situated in the city of Jiaxing--touted as the "homeland of lush produce" and "capital of silk and satin". The company is responsible for the planning, construction and operation of the power grid within 4,223 square kilometers of the Jiaxing City, firmly upholds the "Red Boat Spirit and Electricity Legacy", and endeavors to always keep in mind the original intention of "people's electricity for the people", and is committed to supplying 2,311,000 Jiaxing households with safer, more reliable, better quality and cleaner electricity, to foster quality growth of Jiaxing.

PROJECT HIGHLIGHTS

The success of the project includes a set of standardized inland waterway shore power model that can be rolled out in other locations.

PROJECT IMPLEMENTATION

Vessel shore power technology allows ships to stop using diesel engines to generate electricity and switch to shore power supply at berth in order to obtain the electricity needed for their pumping units, air conditioning, lighting, communication and other facilities. Using shore power on ships will reduce nitrogen oxide emissions by 97%, sulfur oxide emissions by 96%, suspended matter emissions by 96%, and carbon oxide emissions by 94% compared to fuel. Jiaxing has well-developed inland waterway transport, with a waterway mileage of 1957.25 km, representing a density of about 50 km per 100 square kilometers, ranking first in the province in terms of navigable mileage and waterway density, making it the ideal candidate for promoting port shore power.

I. Start with a pilot to explore feasible approaches

In 2016, State Grid Jiaxing identified the stakeholders involved in the investment, construction and operation of the project, selected the largest offshore public service area in northern Zhejiang --the Jiaxing Luhuadang Offshore Service Area, and signed the "Partnership Agreement for Jiaxing Luhuadang Offshore Service Area Shore Power Facilities" with Zhejiang Electric Energy Conservation Ltd. and Jiaxing Port Authority. The agreement set out the omni-process management procedures from project origination, implementation to operation, to build the first inland waterway offshore service area shore power pilot in the province.

The project has built 9 sets of self-service shore power piles with integrated control, metering and billing functionalities, with a total capacity of 192 kVA. Each pile can meet the power demand of two vessels at the same time, and all 9 sets of charging piles can supply power to 18 vessels at once, which generally meets the power demand of vessels at peak hours.

The project has explored and found a feasible process for rolling out and managing inland shore power as a substitute power source, addressing the challenges in the rollout, including user affordability, under-regulated construction of shore power, inadequate management upon completion, and lack of safeguards for shore power usage, establishing a standardized inland waterway shore power model that can be rolled out in other locations.

For boatmen: on the one hand, the use of shore power in Luhuadang reduced the cost of electricity for vessels by CNY0.3/kWh and the annual consumption of diesel by 13.7 tons, which reduces the cost of energy for boatmen and incentivizes them to use cleaner electricity. On the other hand, the use of shore power basically eliminated waste pollution from generators, and elevated the quality of life for boatmen.

For the environment: the shore power of Luhuadang will reduce fuel consumption by about 13.7 tons per annum, greatly reducing an array of pollutants (0.6 tons of sulfur oxides, 0.4 tons of nitrogen oxides, 0.2 tons of particulate pollutants, and 167,000 cubic meters of total smoke exhaust), improving the environment of the service area and the surrounding towns.

Before shore power: berthed vessels generate power from diesel, leading to air pollution

After shore power: visibly improved air quality in Luhuadang offshore services area

II. Rolling out the optimized iterations to multiple locations

The State Grid Jiaxing signed the “Partnership Agreement on Further Deepening Shore Power Development” in collaboration with Zhejiang Electric Energy Conservation Service Ltd. and Jiaxing Port Authority, under which the parties are to continue to further develop and promote inland waterway shore power projects, relying on the successful model of the Luhuadang Offshore Service Area. In addition, it built on the experience of the Luhuadang demonstration project and worked with Zhejiang Electric Power Ltd. to quickly scale up shore power facilities in ports, with key sites including the Beijing-Hangzhou Grand Canal water system and the public offshore service areas along the Taihu Lake.

2017: build a unified settlement platform for shore power transactions. A city-wide shore power operating system was built, integrating all shore power stations into the platform for central management, enabling centralized monitoring, data sharing and unified payment across the region, and providing convenient settlement services through mobile, QR code payment, WeChat and Alipay, etc., facilitating the rollout of shore power with convenient user experience.

In 2018, initiative was taken in launching the “omni-drainage basin shore power promotion alliance”. With the support of State Grid (Zhejiang) Electric Power Co., Ltd. and its subsidiaries, the shore power development and operation model was aligned and shared, prompting State Grid to introduce the “two vertical and one horizontal” shore power development strategy for the Beijing-Hangzhou Canal, Southeast Coast and Yangtze River.

In 2019, the “three fulls” shore power development was rolled out, with 26 sets of low-voltage shore power systems in inland waterways completed. The Luhuadang shore power facilities were expanded further, adding 10 sets of shore power piles, and the annual electricity consumption was increased by 143.75%.

In 2020, the Haining port area achieved full coverage of intelligent shore power systems, where 95% of vessels use shore power while at berth, reducing emissions of carbon dioxide, sulfur oxides, nitrogen oxides and other emissions by more than 200,000 tons a year, and achieving zero pollution from terminals and ships.

As of the end of 2020, State Grid Jiaxing has built shore power facilities at 10 terminals in Jiaxing, with a total of 99 sets of shore power piles, becoming the first to achieve city-wide coverage of shore power in the Beijing-Hangzhou Grand Canal region.

IMPACT & SUSTAINABILITY

Innovated mechanism: a set of standardized shore power model for inland waterways has been established, which can be repeated in other locations. First, establish the partnership model of "grid-led, government-coordinated, private sector involvement" to fully play to the jurisdictional advantage of government authorities, make rational allocation of resources multiple sources, and roll out the demonstration projects in an orderly fashion. Second, build up a robust services mechanism (establish the outbound marketing services model, establish the operation and maintenance model of shore power equipment, enable safety power use by boatmen and identify the terms for fee charges) thereby laying solid foundation for ongoing operations.

In the next stage, State Grid Jiaxing Power Supply Company will further extract the lessons learnt from the success of shore power developments together with State Grid Zhejiang Comprehensive Energy Service Co., Ltd. and the port authority, setting out a series of standards for vessel shore power at ports and technical standards for vessel shore power interfaces, so as to facilitate the development of national technical standards for shore power system at ports and the application of smart grid technology in port shore power projects, regulate port vessel shore power developments, push for shore power to be applied in more ports, and improve the air quality in cities.

STATE GRID TAIZHOU POWER SUPPLY COMPANY

GRAND PROTECTION OF YANGTZE RIVER

PROJECT OVERVIEW

General Secretary Xi Jinping proposed, "For now and quite some time to come, we shall give the utmost priority to the rehabilitation of the ecosystem along the Yangtze river, focusing on major protection in lieu of major development." In June 2019, the General Office of Jiangsu provincial government issued the "Plans of Jiangsu Province for Implementing the Action Plans for Yangtze River Protection", proposing to address pronounced ecological and environmental problems and delivering a harmonious, healthy, clean, safe and beautiful Yangtze River.

State Grid Taizhou Power Supply Company has taken the initiative to join the cause of Yangtze River protection, integrating the concept of green development and clean development into the lifecycle of business operations.

1. Consider ceding to the eco red line in power grid planning and construction to reduce the impact on water and soil.
2. Offer “package deal”, a comprehensive energy services to enterprises and industrial parks along the Yangtze river and assist in the green transformation and upgrading of enterprises with high energy consumption and pollution levels.
3. Protect the biodiversity represented by birds in the territory.
4. Promote the reduction, recovery and recycling of pollutants in a comprehensive approach.

By integrating the concept of sustainable development into all aspects of power production, transmission and consumption, State Grid Taizhou effectively promotes the energy transformation of the Yangtze river basin, and supplies green, low-carbon and efficient electricity to safeguard the quality growth of the Yangtze River Economic Belt, and continuously improves the environment.

COMPANY PROFILE

State Grid Taizhou Power Supply Company is a branch of State Grid Jiangsu Electric Power Co., Ltd., located in Taizhou, a city hailed as "the ancient county of Han and Tang dynasties and renowned area of Huaihai sea". The company supplies to 4 county-level cities (Xinghua, Jingjiang, Taixing and Jiangyan) and 2 districts (Hailing and Gaogang), with 2.7 million household users. Taizhou power grid has 176 substations of 35 kV and above, 5780 km of transmission lines (including cables), uses 500 kV substations as the support power points, forming a highly reliable 220 kV dual-ring network in the north and south sections, providing strong power support for the economic development of Taizhou.

PROJECT OUTCOME

Energy Service:

- Since its commission in May 2019, the cooling and heat storage management contract with the Jingjiang International Hotel has reduced natural gas consumption by 2,509 cubic meters per month, equivalent to reducing carbon dioxide emissions by 4,767 tons and energy costs by nearly CNY30,000 per month.
- The air source heat pump grain dryer at the Jiang Hua grain depot consumed a total of 117,400 kilowatt of power for grain drying in 2020, saving 47 tons of standard coal and reducing carbon dioxide emissions by 117 tons.

Biodiversity Conservation:

- In 2020, 100 artificial bird bases or bird-friendly "resettlement areas" was built in Qinghu Wetland in Jiangyan, Taizhou.

Green Shore Power:

- Between 2015 and 2020, 56 sets of riverfront shore power facilities for low-voltage ports and 332 sets of shore power facilities for inland river ports were completed in Taizhou city;
- From January to November 2020, Taizhou Xinhua port used 27,626 kWh of shore power. Initial estimation puts the reduction of diesel use at 6.06 tons, equivalent to emission reduction of 22.75 tons of carbon dioxide and 0.18 tons of sulfur dioxide.

Recycling:

- In 2019, a total of 10,521 used electric poles were disposed of, following the concept of recycling, to reduce the ecological impact of solid waste.

All-Electricity Powered Scenic Spot:

- The all-electricity powered beauty spot of Qianchi Caihua saves more than 6 tons of fuel, more than 5 tons of standard coal and more than 73 tons of harmful gas emissions such as carbon dioxide on an annual basis.
- The all-electricity powered of Qintong Ancient Town reduces carbon dioxide emissions of 1,956 tons per year.

PROJECT IMPLEMENTATION

Located on the north bank of the Yangtze River, Jiangsu Province's Taizhou boasts of 97.8 kilometers of shoreline along the Yangtze River's main stream, accounting for 11.8% of the province. State Grid Taizhou Power Supply Company has incorporated the concept of sustainable development into its electricity production and consumption to promote the energy transformation and green development of the Yangtze River basin.

I. Developing a harmonious Yangtze River

Create a green power grid and protect the Yangtze River landscape.

During the planning and construction of the power grid, State Grid Taizhou chose the side of highways and ports as the locations to set up power lines where possible. The design of substation and distribution stations made rational uses of small-scale and eco-friendly equipment to reduce the impact on water and soil.

Improve energy efficiency and promote energy conservation and emission reduction.

State Grid Taizhou laid down scientific energy utilization plans for coastal businesses and strived to deliver the switch between old and new dynamics. For example:

Project Title	Details
Jingjiang International Hotel Cooling and Heat Storage Contract Energy Management	Improved energy efficiency in 2019 by installing air-source heat pumps, replacing natural gas boilers with electric boilers to provide domestic hot water, retrofitting central air conditioners with electric storage cooling devices, and using nighttime valley electricity storage
Xinfu Shipyard PV Energy Storage Integration	Completion of 5 MWh of energy storage in 2019, which can deliver peak cuts of 1.5 million kWh of electricity per year
Jiang Hua Grain Depot Air Source Heat Pump Grain Dryer	Completed the renovation of air source heat pumps for the original seven fuel-burning grain dryers in Jiang Hua grain depot in 2018, upgraded grain drying and promoted the renovation of air source heat pumps.

II. Safeguard a healthy Yangtze River

Address the safety issues caused by the conflict between birds and poles. There is a huge magpie population in the Qinghu Wetland in Jiangyan. Magpies, in the habit of building their nests on the transmission line pylons, bring a great challenge to the safe operation of the transmission line. In 2020, State Grid Taizhou sought out an approach that prioritized the protection of birds by placing 100 artificial bird bases or "settlement area" in the safe part of the pylons, guiding the magpies to nest in designated locations, thereby building up a harmonious bird ecology.

III. Facilitate the cleansing of the Yangtze River

Promote green shore power and reduce pollutant emissions. Since 2015, State Grid Taizhou has been promoting shore power to all bulk cargo terminals along the river. As of the end of 2020, the city has completed the construction of 56 sets of shore power facilities for low-voltage ports along the river, 332 sets of shore power facilities for inland river ports, achieving full coverage of shore power facilities for inland rivers, lakes and sea ports. The Taizhou Xinhua Port alone used 27,626 kWh of shore power from January to November 2020, which is initially estimated to reduce the use of diesel fuel by 6.06 tons, equivalent to an emission reduction of 22.75 tons of carbon dioxide and 0.18 tons of sulfur dioxide.

Dispose of waste materials and enable recycling. State Grid Taizhou was an early adopter of underground power grid poles, registering and classifying each obsolete poles for disposal. In 2019, the company disposed of a total of 10,521 waste poles for other infrastructures such as telecommunications, reducing not only the impact of solid waste, but also direct costs by CNY1.8 million compared with conventional disposal methods, yielding a remarkable outcome.

IV. Be at service to the beautiful Yangtze River

Building an all-electricity powered scenic area and fostering beautiful villages. State Grid Taizhou developed all-electric powered beauty spots in scenic areas such as Qianduo Caihua and Qintong Ancient Town, which were officially completed in 2019. The aim was to reduce carbon emissions in scenic spots by building electric car charging piles and promoting air source heat pumps, water source heat pumps, ground source heat pumps, ice storage cooling and other energy-efficient and eco-friendly equipment, gradually eliminating the original coal-fired, fuel oil and other high-pollution energy-using equipment.

IMPACT & SUSTAINABILITY

The Yangtze River is the mother river of the Chinese nation and a cornerstone for the future prosperity of the Chinese nation. In its business operations over the past years, State Grid Taizhou Power Supply Company has always closely monitored the impact of power grid planning and construction, energy consumption structure and other aspects on the eco-environment of the Yangtze River, effectively safeguarding the water and soil, optimizing energy usage, reducing pollutant emissions and improving the ecological index in the embankment areas of Taizhou.

In 2020, State Grid Jiangsu Electric Power Co., Ltd. released the "Guarding the Turquoise Waters - Special Field Report of State Grid Jiangsu Electric Power Co., Ltd. on Facilitating the Grand Protection of Yangtze River". The report dissected the five aspects of how power providers could contribute to the "Grand Protection of Yangtze River", namely, building a harmonious Yangtze River, healthy Yangtze River, clean Yangtze River, safe Yangtze River and beautiful Yangtze River. Moving forward, State Grid Taizhou will continue to work towards its goal of "advancing all five aspects in tandem", continue to foster the eco-rehabilitation efforts along the embankment, facilitate the green transformation of Taizhou city's industries, and set the "tone" of the Yangtze River with a sound ecosystem.

JD.COM

ESTABLISHING A LOW-CARBON SUPPLY CHAIN SYSTEM TO ENABLE A MORE SUSTAINABLE FUTURE

PROJECT OVERVIEW

As a company with the mission “powered by technology for a more productive and sustainable world”, JD.com (JD) is committed to building a low-carbon and sustainable digital social supply chain. JD has launched its "Green Stream Initiative" sustainable development strategy, and endeavored achieve a clean energy transformation through a step change across the supply chain, including packaging, warehousing, transportation, and retail, to create a circular economy in response to science-based carbon emissions goals.

The concept of sustainability runs throughout JD's digital social supply chain. The solar photovoltaic system installed on the rooftop of its warehouses effectively reduces the energy consumption and carbon emissions of the storage system. Clean energy vehicles are put into operation. JD utilizes green recyclable packaging, such as the "green stream box", to reduce the consumption of resource. On the retail consumer side, a series of schemes were launched (e.g., recycling of pre-owned items) to get more consumers involved in sustainable consumption and support the circular economy.

Moving forward, JD has set clear carbon emissions reduction targets for its supply chain system. JD Logistics (JDL) has become the first logistics company in China to commit to a science-based carbon emissions target. JD will continue to leverage its robust industrial chain and brand prestige to promote green operations and consumption together with all players involved in manufacturing, circulation, and consumption industries.

PROJECT OUTCOME

Green Warehousing:

- In 2017, JD Logistics took the lead in deploying a rooftop distributed PV power generation system in the Shanghai “Asia No. 1“ Intelligent Logistics Park, and it was officially connected to the grid for power generation in 2018. The power generation in 2020 was 2.538 million kWh, which is equivalent to reducing CO2 emissions by about 2,000 tons and saving about 800 tons of standard coal.

Green haulage and distribution:

- Between 2017 and 2020, JDL achieved 100% coverage of first-tier cities with new energy vehicles with at least 5.84 tons of CO2 emissions reduced per vehicle per year

Green packaging:

- Since 2015, JDL has used recyclable delivery boxes over 160 million times., including Green Stream boxes and recyclable cold chain boxes. This has reduced the use of paper by over 910,000 tons, equivalent to 6.37 million fewer trees being cut down.
- More than 2 billion delivery cardboard boxes have been saved by shipping products in original packaging directly from manufacturers and delivery box recycling.

Awards:

- In 2020, the Green Stream Initiative was named as one of the World Economic Forum’s Lighthouse projects for 2020 and awarded the Sustainable Retailing Initiative of the Year (2020) by World Retail Congress. The project has also received awards, including the World Wildlife Fund Green Transformation Pioneer Award; and the Paulson Prize for Sustainability, as a demonstrable case of a sustainable global conglomerate.

COMPANY PROFILE

JD.com officially entered into the e-commerce industry in 2004. Positioned as a supply chain-based technology and service enterprise, its businesses cover retail, technology, logistics, health, insurance, property and international business. JD.com aims to become the most trusted company in the world, with the mission of “powered by technology for a more productive and sustainable world.”

PROJECT HIGHLIGHTS

Jerry Duan, head of JD's Green Stream Initiative: "The virtuous never tread alone. Protecting the environment is a society-wide topic, and the efforts of one company alone may not be enough to draw the attention of the wider society. JD is actively spreading the word and promoting the green supply chain initiative. A host of suppliers and brands have shown enthusiasm in joining our Green Stream Initiative. We may not all have the same understanding of the green philosophy, but our ultimate goal is more or less the same."

PROJECT IMPLEMENTATION

JD has launched its "Green Stream Initiative" as part of its sustainable development strategy. The company is committed to establishing a sustainable ecosystem for the global business community by implementing low-carbon and energy-efficient practices in transportation, warehousing, packaging and recycling.

- **Setting carbon emissions reduction targets with a scientific approach**
  In 2020, JDL became the first logistics company in China to commit to the Science Based Target initiative (SBTi) for carbon emissions, promising to reduce total carbon emissions by 50% by 2030 compared to 2019 levels. JDL's SBTi is part of the JD.com's carbon emissions reduction target, in a pioneering attempt to explore low-carbon supply chain in transportation and warehousing.

- **Enable low carbon transportation**
  JD has built up a green route for transportation by replacing conventional fuel vehicles with new energy ones. Together with its partners, JD has built and introduced more than 1,600 charging terminals nationwide to ensure charging services for new energy vehicles of JDL and its partners. From 2017 to 2020, JDL launched nearly 12,000 new energy vehicles in seven regions and more than 50 cities across China. The vehicles accumulated a combined mileage of 810 million km, saving enough gasoline to fill up 54 Olympic-size swimming pools. All vehicles used in first-tier cities are powered by new energy, reducing carbon dioxide emissions by at least 5.84 tons a year per vehicle. JD's application of such vehicles marks the debut of pure electric vehicles in China's domestic logistics and express delivery industry. JDL also forged partnerships with top OEMs and new energy vehicle manufacturers, and established a new energy alliance, jointly seeking to help promote the application of new energy in the industry.

- **Achieve lower-carbon management of industrial parks**
  JD has vigorously promoted solar energy and other renewable energy sources across its logistics sites through the adoption of rooftop solar photovoltaic systems. In 2017, JD became an early adopter of such systems, with implementation in its Shanghai "Asia No.1" intelligent logistics park and formally connected to the State Grid in 2018. Since 2020, JD has reached cooperation agreements with a host of established new energy companies to promote the construction of photovoltaic power plants in smart industrial parks nationwide in a bid to build the world's largest rooftop solar PV ecosystem. It is expected that by early 2021, the solar photovoltaic system will be connected to the State Grid across seven JD smart logistics parks in Beijing, Tianjin, Hangzhou, Xi'an, Qingdao, Hefei and Kunshan. In addition, all of JD's logistics parks will accommodate PV power plants of more than 200 MW, and the power generation capacity upon completion will reach over 160 million kwh. JD is piloting the solar photovoltaic system in its Asia No.1 logistics park in Xi'an., –The company will also apply rooftop solar PV systems in Tianjin and Hefei, where it is building 1.5 million square meters warehousing facilities.

- **Develop greener logistics packaging and draw up greener industry standards**
  JD has devoted its leading R&D technology to use environmentally friendly or renewable materials throughout the entire supply chain. It has partnered with business ecosystem partners to set industry standards for green packaging. Specifically, JD has set up the "JD Innovation Center for Joint E-Commerce & Logistics Packaging " and has developed new materials such as dual-layer logistics labels and biodegradable delivery bags. The adoption of dual-layer labels helps reduce the use of paper by 700 tons each year. Biodegradable bags are now used by JD at scale, eliminating the use of nearly 10 billion traditional plastic bags each year. The company also put into circulation 100,000 Green Stream recycling boxes. In August 2019, JD and a number of institutions and enterprises jointly set up the China E-Commerce Logistics Industry Packaging Standards Alliance to discuss the development, application and promotion of packaging standards in the e-commerce industry. The standards provide an important basis for upstream and downstream players in the supply chain, informing packaging design for brand owners and the development of packaging value-added services for logistics providers.

IMPACT & SUSTAINABILITY

JD.com is committed to driving business growth with technology, providing technological support to external partners with an open attitude, and working with them to continuously create value for society. In 2020, JD and Unilever signed a memorandum of understanding to form a strategic alliance in the areas of "environment, humane society and economy", focusing on sustainable development of supply chains, and initiating in-depth cooperation in plastic recycling, 5G intelligent supply chain solutions, and carbon reduction transportation plans to jointly establish and promote a sustainable development ecosystem in the global business community. This means that JD will continue to leverage its robust advantages in industrial chain and brand prestige in the future, and work with all players involved in manufacturing, circulation and consumption to incorporate responsible consumer behavior into day-to-day life.

In October 2019, JDL officially joined the Science-Based Targets initiative (SBTi), becoming the first logistics provider in China to commit to it. In November 2020, JDL officially declared its 2030 climate target as a 50% reduction in total carbon emissions by 2030 compared to 2019 levels. JD has set more specific goals to accelerate the progress of emission reduction going forward: 1) procure and use green electricity in its logistics parks and operations sites; 2) replace 100% of logistics vehicles with new energy ones by 2030; 3) achieve 100% eco-friendly renewable/replaceable packaging materials by 2030, and continue to promote green packaging recycling; 4) encourage more than 80% of upstream brands to carry out R&D for eco-friendly packaging by 2030; 5) push for 50% of JDL's suppliers to join the SBTi by 2025 and fully leverage the strengths of JD's robust supply chain; 6) continue to entice more consumers to join the green consumption initiative and take action to conserve energy and reduce emissions.

JA SOLAR

"SMART-ENABLED UTILIZATION OF COLD & HEAT SOURCES" SCHEME

PROJECT OVERVIEW

As a new energy company, JA Solar Technology Co., Ltd. has committed to contributing to sustainable development through ongoing innovative efforts in clean energy technologies. The company has dedicated its operations to energy conservation and lowering emissions to address climate change. Full-scale environment protection initiatives have been launched across the corporation, with energy conservation diagnostics and technological reforms completed across its sites. JA Solar has also enlisted the help of its suppliers in upgrade efforts, yielding remarkable results for the past few years.

JA Solar launched a "smart-enabled utilization of cold & heat sources" scheme across a number of sites, where the production bases devised tailored plans for utilizing outdoors cold source in winters in the production process and recycling the residual heat therefrom. Under the scheme, four projects were originated in the first phase and had since been completed. The projects have saved a total of 15,460 MWh per annum in electricity and 7,368 m^3 per annum in natural gas, equivalent to a reduction of 11,511 tons of carbon dioxide emissions.

PROJECT OUTCOME

- Electricity savings: 15,460 MWh per annum
- Natural gas savings: 7368m^3 per annum
- Equivalent to the reduction of carbon dioxide emissions of approx. 11511 tons

COMPANY PROFILE

Founded in 2005, JA Solar is a world's leading manufacturer of high-performance photovoltaic products, with it business line covering silicon wafers, cells, modules and photovoltaic power stations. With 13 manufacturing bases and independent silicon wafer labs, cell labs and module labs, JA Solar is the world's top supplier of core cell technology and has ranked in the first place globally for eight consecutive years in terms of mass production technology and scale, providing nearly 50% of the high-quality components for China's first PV "fore-runner" pilot and supplying to more than 120 countries and regions. In 2019, the company ranked second in the world for component shipments, with a global market share of 10%, and has been listed on the Fortune 500 China and the Global Top 500 New Energy Enterprises for many consecutive years.

PROJECT HIGHLIGHTS

"Lucid waters and lush mountains are invaluable assets." As a new energy company, we regard the development of eco-focused civilization as our inherent social responsibility. This firm belief shall guide our future endeavors focusing on clean energy and technological innovation, with the view to making our own contribution to sustainable development and safeguarding our blue skies for the welfare of the planet and our offspring.

Jin Baofang, Chairman & CEO

PROJECT IMPLEMENTATION

JA Solar has been practicing conservation and emission reduction and working towards sustainable development goals over the last few years. And in the light of constant technological advancement and scaling-up of green policies, we have been rolling out water, electricity and material conservation projects on an annual basis. Our key projects for the year 2020, under the smart-enabled utilization of cold [and] heat sources" scheme, include the following:

Smart-enabled projects:

1. AI-enabled central air conditioning control project at the Yangzhou site
   In the context of an increase in production capacity and the expansion of new workshops, the company decided to transform its central air conditioning system of both legacy and newbuild power stations into smart-controlled units. It started with designing the old power station by separating water-supplying zones. In each workshop, the flow rate is automatically adjusted through the intelligent flow valve as per the real-time cooling demand in order to achieve a balance of cooling capacity in each workshop. A set of free winter cold source system is also added (low temperature outdoors enable the supply of cold water to the workshop, reducing the running time of the air-con unit, thus saving on energy consumption). Furthermore, a central air conditioning AI optimization system is built to enable remote automatic control of the air conditioning mainframe, chiller pump, cooling pump, cooling tower, plate exchange system and process cooling water system using artificial intelligence technologies such as big data, self-learning and multi-objective dynamic planning. The machine room can operate unattended. The remote automatic control of the system is all under the management of energy-saving operation logic, which enables energy-efficient control by switching to free cooling source in winters and to the summertime mode as needed. The system's functions also include the collection and analysis of equipment operation data and fault alarm. The system optimizes the dynamic operation of various equipment and subsystems of central air conditioning based on user demand and environmental changes, and generates the optimal operating strategy to achieve efficiency, cost reduction and improved safety.
   - 6% improvement in chiller efficiency;
   - 35% to 46% reduction in electricity consumption of refrigeration system in winters;
   - 20% reduction in electricity consumption of refrigeration pump, cooling pump and cooling tower fan (16% in summer);
   - Electricity saving: 12,000 MWh per annum; CO2 emission reduction: 8800 tons per annum.

   The project started in early 2019, due to the Covid-19 pandemic, all commissioning was completed in March 2020, with a total investment of CNY17.5 million and cost recovery expected in 2 years.
2. Automation of inverter-controlled central air conditioner at JA Solar's Hefei site
   JA's Hefei site boats of a ISO50001-certified state-level green factory. The Hefei site also makes very proactive efforts in energy saving and emission reduction and has been engaging outside specialists for energy saving diagnostics every year, on the advice of whom the company again made a frequency conversion transformation of the company's central air conditioning system to enable group control and centralized monitoring. The chilled water pump/tower fan saves at least 30% energy compared to previous levels. A minimum of 6% in energy savings can be achieved through the installation of WES-condenser rubber ball in-line automatic cleaning and energy-efficient control system, with a comprehensive energy efficiency of over 10% compared with previous levels, which is estimated to save 2,880 MWh/year and reduce CO2 emissions by 2,112 tons per annum. The project is carried out in tandem with the aerodynamic renovation system, and the overall cost will be recovered in about 6 months.

Cold/heat use projects:

1. Air compressor hot exhaust air reuse project at the Donghai site
   Jinghaiyang Semi-Conductor Materials (Donghai) Limited is primarily a producer of solar -grade mono/multi-crystalline silicon wafers. The production process mainly involves gluing, slicing, debonding, cleaning, testing and packaging. The gluing step has special temperature and humidity requirements for the working area to achieve optimal results.

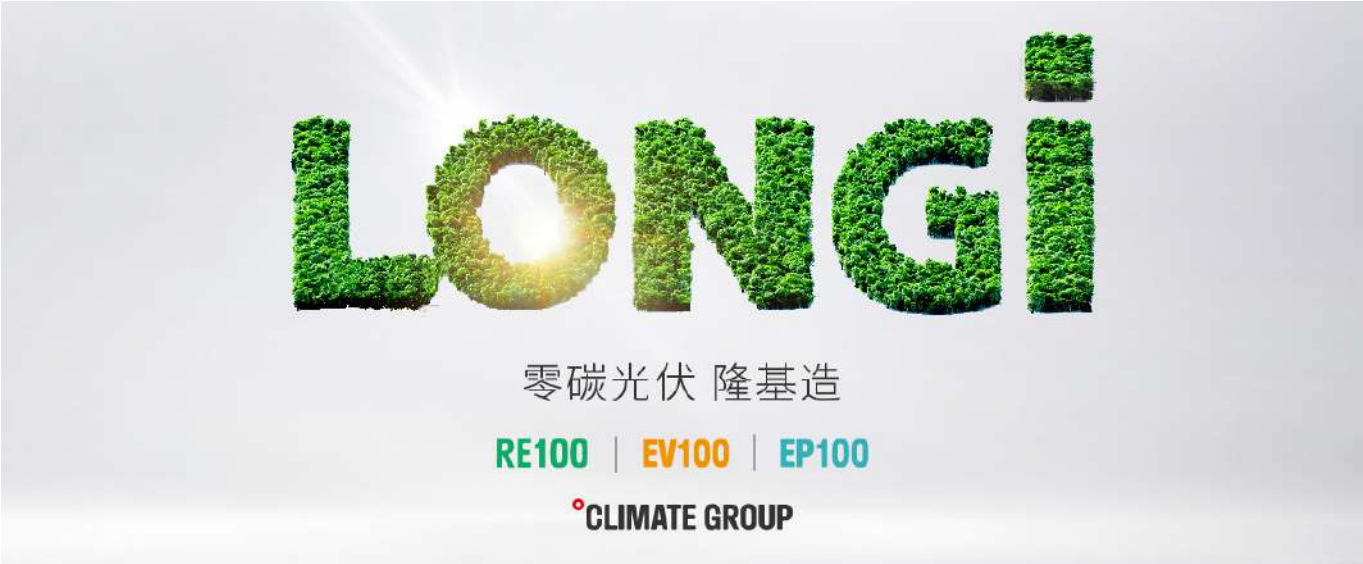
   Before the technical transformation, the gluing room was entirely heated by the company's two atmospheric water boilers, using natural gas as the boiler dye. After the transformation, the hot air generated by the three air compressors was introduced into the air conditioning duct of the gluing room to supply heat, thus reducing the consumption of boiler heating, saving the use of natural gas, and reducing the emission of particulate matter, nitrogen oxides and sulfur dioxide.

   The following benefits have been concluded from data collected from renovation project in operation and through a comparative analysis with previous years' data.
   - Natural gas saving: 7,368m^3 per annum;
   - Indirect reduction of CO2 emissions: approx. 25.52 tons;
   - Reduction of particulate matter, nitrogen oxides, sulfur dioxide emissions;
   - The investment of the project: CNY30,000, recovered in about 13 months.
2. Low-temperature cooling process water use in cooling tower at the Donghai base
   The line cutting process water in the company's workshop is cooled by the 800RT chillers (and related circulation pumps), which consumes a lot of electrical and mechanical energy during the operation of the units and generates noise. In light of this, the company's technicians examined local climatic conditions (external temperature of as low as -10 in winters) and carried out precise calculations to optimize the existing pipeline in January 2019, enabling one of the two sets of cooling towers in the machine room to cool the chiller's condenser normally, and the other set to cool the line cutting process water through the plate heat exchanger. During winter (when the external air temperature is lower than 10), cooling water from the cooling tower is used to cool the process circulating water directly through the plate heat exchanger to reach the required temperature of the production process water, without any adverse effect on safety and quality. On this basis, the original chilled water system equipment can be decommissioned (chiller unit and chilled water pump), which indirectly reduces the power consumption and noise pollution. The project has now been put into operation with good effect.
   - Electricity saving: 580 MWh per annum;
   - Indirect reduction of CO2 emissions: approx. 574 tons;
   - Noise pollution reduced;
   - Technological innovation generated over CNY200,000 in quarterly economic benefits for the company;
   - The project has an investment of CNY240,000 and payback period is estimated to be 8 months.

IMPACT & SUSTAINABILITY

The "smart-enabled utilization of cold & heat sources" scheme has proven to be rewarding investments. In particular, the smart AI control and the Internet of Things (IoT) model have greatly improved energy efficiency and enabled safer and lower cost operations. We have also found that utilizing natural cooling sources and residual equipment heat is not only a good use of potential resources, but also an effective approach to cost savings. Going forward, JA Solar will delve ever deeper into energy conservation projects and continuously employ new technologies to promote energy saving and emission reduction, with a view to achieving the climate action goals.

Enabling energy saving and effectiveness enhancement with advanced science and technologies is the goal that JA Solar shall always pursue. As a new energy-focused business, we shall lead by example by applying the concept of energy conservation and environmental protection to all aspects of our design, production, packaging, transportation and supply chain. Currently, JA Solar has three state-level green factories. And we shall contribute more in the areas of green, environmental protection, conservation and emission reduction.



LONGi

SOLAR COMPANY CLIMATE ACTION LEADED BY THREE "100"INITIATIVES

PROJECT OVERVIEW

LONGi Green Energy Technology Co., Ltd, (LONGi), one of the most valuable solar technology enterprises across the globe, is creating the low cost clean energy for the world while practicing the green development concept under its mission of "Utilizing Solar Energy, Powering into Green World". In 2015, LONGi pioneered in localizations of diamond wire cutting technology, ushering the photovoltaic industry into the "diamond wire era". In 2016, LONGi set up production bases in Yunnan Province and Kuching of Malaysia, utilizing the rich local hydropower resources to produce photovoltaic products, realized " manufacturing clean energy with clean energy". In the United Nations Climate Change Conference in 2018, LONGi put forward the concept of "Solar for Solar" of zero carbon emissions for whole PV industry chain. LONGi had joined in the "RE100", "EV100", "EP100" and "Science Based Carbon Target" (SBTi) initiatives to actively respond to international action initiatives of climate change, making it the first Chinese enterprise joining all four initiatives. This choice had promoted emission reduction actions of both the company itself and the PV industry, and advanced the worldwide applications of the "PV+ Storage" solution against climate change.

PROJECT OUTCOME

- LONGi invested and developed the diamond wire cutting technology and shared with the entire solar industry. Approximately 30 billion Yuan can be saved annually for the industry with this contribution, which has the milestone significances to the product cost reduction and efficiency enhancements for PV products.
- In 2019, LONGi had consumed 2.6 billion kWh electricity in its PV product manufacturing process in Yunnan Province totally, and these products had been delivered globally. Most of the electricity consumed was green power, thus realizing the spatial and temporal migration of green energy.
- After entering Yunnan, LONGi has invested more than 20 billion Yuan across Yunnan Province, and 17,000 jobs were created. Under LONGi's motivation, multiple PV enterprises had been motivated to develop their businesses in Yunnan.
- Gradually, the company has built up a green production base covering the whole PV industry chain, and the related industry had achieved an revenue of about 30 billion Yuan in 2019.
- In 2020, LONGi became the first Chinese company joined in the RE100, EV100, EP100 and SBTi (Science Based Targets Initiative).

COMPANY PROFILE

Founded in 2000 and listed in the Shanghai Stock Exchange in 2012 (code: 601012), LONGi has evolved itself into the most valued solar technology company in the world. Relying on its strong scientific and technological innovation capabilities, LONGi focuses on two modules of photovoltaic products manufacturing and photovoltaic technology solutions, with businesses covering monocrystalline silicon wafers, cells, modules, distributed power stations and ground power station system solutions, and a full range of services from photovoltaic materials, photovoltaic power generation equipment to solar power plant systems to support the photovoltaic power generation businesses. Meanwhile, The company is on the path of transformation from industry-changing product innovation to technological innovation that changes the world's energy pattern, and strives to accelerate the global green and low-carbon energy conversion process.

PROJECT HIGHLIGHTS

Li Zhenguo, President of LONGi, had said that LONGi, The Climate Group and all RE100 member enterprises have a shared original inspiration and dream, namely, to build a better world with complete clean energy to tackle the global warming challenges absolutely. LONGi hopes to provide more referential goals for more enterprises through its own explorations. In future, LONGi will strictly implement what it has committed to achieve 100% clean energy goals in one way, and it will continue to bring the clean energy in some wider applications in the society in another way.

PROJECT IMPLEMENTATION

Since the beginning of the 21st century, climate change and sustainable development had evolved into a global development theme. LONGi pursues its mission of " Utilizing Solar Energy, Powering into Green World". It strongly supports climate actions and firmly believes that "PV + energy storage" is a powerful weapon to combat climate change. Represented by LONGi, Chinese enterprises had popularized diamond wire cutting technology for PV products, which enabled a 90% cost reduction of the power generation in the past two decades. Because of the cost reduction and efficiency improvements on the PV products driven by the technology, the power generation cost is even driven down to 0.1 Yuan per kilowatt hour. This technology is available to China and the world for the goals of carbon peak and neutrality.

After becoming the leader for PV technology, LONGi began to explore the sustainable development in PV industry. Since 2015, LONGi has consciously carried out large-scale production layouts in Yunnan, China and Kuching, Malaysia, hoping to make use of the abundant and clean local hydropower resources to manufacture photovoltaic products, eliminating the “imperfect” practice of using thermal power to produce photovoltaic products.

At present, all LONGi plants in Yunnan have basically achieved clean energy based power supply. It is estimated that PV products produced by one kilowatt clean hydropower will generate more than 30 kilowatts clean photovoltaic power during its life cycle. That is, the clean hydropower from Yunnan Province can be delivered to the global market through PV products produced by LONGi, and LONGi becomes a "mover and amplifier of clean energy". Because of the unique environment for developing clean power in Yunnan, more and more enterprises from the PV industry propelled by LONGi started to deploy their productions in Yunnan province, which had made the green energy one of the representative and emerging industries of Yunnan Province.

In response to the United Nations 2030 Sustainable Development Goals (SDGs), LONGi had joined in the Global Compact and international initiatives for global climate actions, and continuously improves on its own climate action goals and influences of itself for climate actions. At the 24th UN Climate Change Conference convened in 2018, LONGi formally put forward the "Solar for Solar" concept, advocating the use of photovoltaic energy for complete clean and zero-carbon manufacturing of PV products, applications of low cost and large-scale photovoltaic power generation, seawater desalination and desert greening. It is predicted that when 70% of the global desert turns into oasis, it can absorb and solidify all carbon emitted in the human history. Currently, LONGi is proactively execute this concept by deploying photovoltaic power generation systems on factory roofs and giving priority to clean power supply options in productions.

LONGi’s climate action were not stopped due to the COVID-19 pandemic. In March 2020, LONGi had officially joined in the Climate Group's RE100 initiative, committed to use 100% renewable energy for its production and operations worldwide by 2028 at the latest. By June 5, the World Environment Day, LONGi had submitted the commitment letter for Science Based Targets Initiative (SBTi), and starting to set goals for reduction of the greenhouse gases. In November, LONGi announced to join in the Climate Group's EV100 and EP100, committed to install sufficient electric vehicle charging facilities in the next decade to guide employees to convert their personal cars to electric vehicles. The deployment of energy management systems will be completed by 2025, and energy use efficiency will be improved by 35% on basis of these in 2015. LONGi is the first company in China joined in RE100, EV100, EP100 and SBTi of the Climate Group concurrently, actively responding to China's 2030 carbon peak and 2060 carbon neutrality commitments. Eventually, LONGi has set an example in China with its efforts on climate change and sustainable development .

IMPACT & SUSTAINABILITY

Since the accession of LONGi into the international initiatives for climate change actions, it has attracted wide attentions and won supports from renewable energy industry. On August 8, 2020, LONGi initiated “RE 100 China Initiative” with the Renewable Energy Committee of China Energy Research Society, the PV Committee of China Green Supply Chain Alliance, Vision Technology, Sunshine Power and other enterprises. This initiative is calling on more Chinese enterprises to carry the 100% green power consumption forward in response to the global climate crisis and energy revolutions in China. It had also proposed to develop “RE100 Alliance” to facilitate the advancement of renewable energy philosophy in China. At the same time, this initiative advocates greater roles to play by renewable energy in the sustainable energy portfolios in China and speeds up high quality economic development.

On January 8, 2021, the company and more than 150 suppliers published *LONGi Carbon Reduction Initiative Letter for a Green Supply Chain*, calling for the establishment of a green supply chain, and promoting larger-scale photovoltaic power applications with the concept of green manufacturing and green applications and help China achieve energy reform and carbon neutrality goals.

LANDSEA GROUP

LANDSEA GREEN CENTER

PROJECT OVERVIEW

Landsea Green Center is located in Shanghai Hongqiao Business District, with a construction area of 5700 square meters. The project was invested in 2017 and redesigned at the beginning of 2018. The project started to carry out transformation in April 2018 and was completed and put into operation in October 2018. It is the world's first renovated office building built in accordance with five types of certification standards, including LEED, WELL double platinum, Green 3 star, DGNB and BREEAM.

This project adopted 108 building technologies in 14 major technical systems, realizing 5 core values of human design, healthy environment, comfortable office, energy conservation and environmental protection, and intelligent management. The overall energy consumption is more than 30% lower than the average of Shanghai office buildings.

The project adopted ultra-low energy consumption exterior walls and doors and windows, together with photovoltaic, fresh air heat recovery, equivalent physiological lighting and other building energy-saving technologies, to realize the overall energy saving of the project from all aspects of lighting, vision, ventilation and air exchange. Compared with ordinary buildings, its energy saving and emission reduction potential is more than 70%, effectively reducing the consumption of building energy, and promoting construction can effectively alleviate the pressure of energy shortage. With the outstanding performance of sustainable concept and innovative practice, Shanghai Landsea Green Center skillfully integrated nature and architecture to form a space that can interact with nature intelligently and is extremely humanized. It is a model in the field of green health office.

*The average energy consumption of office buildings in Shanghai is 120kWh /m^2, and the energy consumption level after the renovation of Landsea Green Center is about 60-75kWh /m^2.

PROJECT OUTCOME

The world's first office building renovated in accordance with LEED + WELL double platinum + Green 3 star + DGNB+ BREEAM, which are five types of certification standards.

- Energy-Saving Technology: the ratio of doors and windows and heat transfer coefficient of buildings are better than the corresponding design value of national standard "Design Standard For Energy Efficiency Of Public Buildings" GB 50189 by more than 20%;
- Renewable Energy Application: the installed photovoltaic capacity is 16.5kw, and the annual power generation is about 19800kwh;
- Saving Building Materials: the integrated design of all indoor space decoration of the project can effectively save building materials. The proportion of recyclable materials used in building reconstruction and decoration accounts for 12.11% of the total weight of building materials.
- Awarded 198.295 million yuan subsidy of Low Carbon Development Special Fund of Shanghai Changning District in November 2020.

COMPANY PROFILE

朗诗控股

Established in 2001, by adopting a strategy of green product-differentiation for development, maintaining a forward- looking perspective and upholding a sustainable development philosophy enabled by constant innovations and reforms, Landsea has steadily achieved deeply differentiated and diversified development. With residential property development as its main business, Landsea Group is also actively conducting business such as technology development, elderly care services, green financial services, green property management, green decoration, and long-term apartment rental. With these efforts, Landsea has become an international development service provider and residence operator focusing on sustainability, with expertise in vertical integration.

PROJECT HIGHLIGHTS

As the world's first renovated office building built in accordance with LEED + WELL double platinum + Green 3 star + DGNB + BREEAM certification standards, The project was showcased in the Green Construction Conference, World Passive Room Conference and other forums for domestic and foreign building technology peers.

Since its delivery in November 2018, it has received nearly 1000 professional customers and architectural designers to visit and inspect. And as a demonstration project of healthy building, it has participated in the international architectural design award.

PROJECT IMPLEMENTATION

Different from the traditional renovation of building surface, Landsea Green Center adhered to the group's consistent green thinking, combined with the local climate and the characteristics of buildings in Shanghai, systematically analyzed and applied green technologies. The technologies adopted were demonstrative and promotional, and highly conformed to the promotion demands of national policies for urban green and energy-saving buildings.

The five core values "human design, healthy environment, comfortable office, energy conservation and environmental protection, intelligent management" are embedded in the following aspects:

Architectural Design:

Inspired by the Bruck building, a passive building in the R&D base of Landsea Changxing and the principle of passive design, together with Landleaf, Landsea Green Center used a combination of fixed sunshade and electric sunshade blinds to create the building appearance (such as EPS gray board exterior wall insulation system, 75 profile double-layer high-performance hollow glass system, south fixed sunshade, east-west fixed sunshade + electric central blinds roof overhead + roof greening overall building air tightness control cold and hot bridge avoidance measures).

Atrium Stairs:

From the first floor to the fourth floor, the staircase behind the background wall is used for linkage to encourage employees to make green vertical traffic through the staircase. The staircase can reach the roof directly. In the first floor, the staircase space can look up to the sky, and the natural light can be introduced into the room. The theme of the ocean, the earth, the mountains and the sky are linked together, which implies the meaning of climbing upward, and represents the corporate culture of Landsea on the road forever. At the same time, the stairs are equipped with a step recording system, which can display the steps of the employees in the stairs.

Zero Formaldehyde Decoration:

The pollutant management in the decoration process is very important to ensure good indoor air after the completion of the project. The whole process of decoration formaldehyde control was adopted in this project, and the formaldehyde concentration was controlled according to S1 standard (0.03mg / m3) of Finland. During the implementation of the project, from the selection of materials to the factory acceptance, to the on-site monitoring, sampling inspection, construction supervision, to the final on-site inspection and completion acceptance, all adopted the highest-level standards, implement strict management measures, and ensured the final good indoor air quality.

Energy Saving and Emission Reduction:

In the design process, the project reduced the carbon emission during the generation process by optimizing the integrated technology of building envelope design, design and construction; the movable external sunshade system was set on the building facade, which can effectively reduce the air conditioning energy consumption during the operation process; the high-efficiency energy-saving ground source heat pump air conditioning system was adopted, and the domestic hot water was produced, which reduced the carbon emission during the operation and maintenance stage of the building.

Lighting Illumination Management:

In order to make the office environment humane, the illuminance of each work station will be combined with the outdoor natural light intensity, and the illuminance intensity will be adjusted by self to make it more suitable for office work.

IMPACT & SUSTAINABILITY

Technological Innovation

The main office area of the project adopted the independent replacement fresh air system + floor type fan coil + top capillary. The fresh air adopted the condensation heat recovery technology to send the deep dehumidification of the fresh air to the room through the fresh air pipe. The indoor side adopted the floor air supply form to ensure the thermal comfort of the office air and improve the indoor air quality.

In addition, the project was equipped with intelligent air conditioning display system, which can display indoor air quality parameters, including CO2, formaldehyde, TVOC, etc. The fresh air fan can control the room air supply according to the indoor CO2 concentration. When the CO2 concentration is higher than 800ppm, the fan increases the fresh air supply to ensure the indoor air quality.

Sustainability

The project adhered to the human-oriented design principle, including advocating for a balanced layout of work and life, promoting equal, cooperative and collaborative desk distribution and shared office. The design and management considered employees' physical and mental health in color matching, lighting, noise reduction management, energy management, and emotion management. The project created a"healthy, comfortable, energy-saving, environmentally, friendly, intelligent and humanistic" sustainable working environment for employees.

In the special support measures for green buildings launched by Shanghai, the establishment of two subsidy standards for "Green Building Demonstration Projects" and "Existing Building Energy-saving Renovation Demonstration Projects" also affirmed a batch of green buildings represented by Shanghai Landsea Green Center. It plays a positive role in the promotion of green energy-saving buildings.

L'ORÉAL CHINA

"CARBON NEUTRAL" PROJECT

PROJECT OVERVIEW

With sustainable development at its strategic core, the "Carbon Neutral" journey of L'Oréal China began in 2015.

Following Yichang plant's carbon-neutral footprint in 2015, in Jan 2018, Suzhou plant signed the "Carbon Neutral" agreement with Suzhou Industrial Park. Since then, Suzhou plant started the construction of a CHP plant (Combined Heat and Power), to produce steam, electricity and heat on site with high efficiency. The successful completion of CHP project, combined with distributed solar PV and procured wind power, enabled Suzhou plant to become carbon neutral in June 2019. With this milestone realized and distribution centers, R&I centers and offices in China using renewable clean energy, L'Oréal China became L'Oréal Group's 1st market to complete carbon neutrality across the operation sites covering plants, distribution centers, research and innovation center and offices.

L'Oréal China provided reference for carbon reduction projects in China and around the world and became a green benchmark for the Group and even the Chinese cosmetics industry, encouraging more enterprises and organizations to take actions to reduce carbon emissions.

PROJECT OUTCOME

L'Oréal China CO_2 emission comparision (2018 as the base year)

Facility	CO_2 emissions (tons/year)	
	Before	**After**
Suzhou Plant	2094	0
China Distribution Center	1359	0
China Research & Innovation Center	3331	0
China offices	2947	0
Yichang Plant	Not available	

Commendations won:

- Suzhou Shangmei factory was awarded one of the first National Green Demonstration Enterprises
- Yichang Tianmei "carbon neutral" plant was awarded one of the first China-France Industrial Cooperation Demonstration Projects
- Suzhou Shangmei "carbon neutral" plant was awarded the second batch of China-France Industrial Cooperation Demonstration Project
- Suzhou Shangmei factory won the Third-level Energy Star Award
- Suzhou Shangmei Plant phase III plant recived LEED Platinum Certification

COMPANY PROFILE

L'Oréal has devoted itself to beauty for over 100 years. Along with its business success, L'Oréal also laid emphasis on sustainable development and launched the "SHARING BEAUTY WITH ALL" sustainable development program in 2013, which run through the value chain. L'Oréal sustainable development was recognized by CDP. In 2019, L'Oréal become the first and only company in the world to have achieved a triple "A" score for three consecutive years.

PROJECT HIGHLIGHTS

The realization of the "carbon neutral" plant was an important milestone for L'Oréal China. L'Oréal China is not only the second largest branch in the Group, but also the first branch to achieve zero-carbon footprint. It reached its carbon footprint neutrality by its operation facilities including factories, distribution centers, R&D and innovation centers and offices. Sustainable development has never been an back up option for L'Oréal China. Rather, it is about the well-being and health of our generation and every generation to come.

PROJECT IMPLEMENTATION

As the world's largest cosmetics group, L'Oréal has always committed to develop low-carbon growth to limit the negative impact of corporate activities on the ecosystem and has always regarded sustainable development as the core of its corporate strategy. In China, L'Oréal keeps innovating and creates a special path for sustainable development.

In 2015, L'Oréal signed Yichang's Carbon Neutral Plant Project with Yichang Government in the presence of the then French Prime Minister Manuel Valls and the Chinese Premier Li Keqiang. The project focused on the use of clean and renewable energy - hydropower. The plant had then replaced all gas-fired equipment with electricity-powered facilities, making green electricity the sole source of energy for the plant. At the end of 2015, the Yichang plant achieved its "carbon neutral" objective: the Yichang site became L'Oréal's first plant in Asia-Pacific to achieve carbon neutrality.

In order to go further and realize "Zero Carbon Emission", in January 2018, during French Prime Minister Macron's China visit, witnessed by China Minister of Commerce Mr. Zhong Shan, French Minister of Economic Mr. Bruno Le Maire and Foreign Affairs Minister Mr. Jean-Yves Le Drian, L'Oréal and Suzhou Industry Park signed "Carbon Neutral Plant Project".

The Project was invested and constructed by L'Oréal Suzhou Plant. Under the support and guide of Suzhou Industrial Park Administration Committee, a biomass CHP (combined heating and power) system was built on-site to produce the green steam and bio-electricity. The fuel gas for CHP system is biogas, which is produced with using food waste and landscaping waste as raw material by biological process in Suzhou Industrial Park. The CHP system provides 100% steam for plant (currently, it is about 18000 ton/year), and produce electricity 1.8M KWh/year, accounting for 12% of total power consumption of the plant. Meantime, the CHP system recovers heat 6200GJ/year to heat up the hot soft water. Accompanied with previously built 1.5MW distributed photovoltaic system and procured wind power nearby, at the end of June in 2019, L'Oréal Suzhou Shangmei Plant achieved its target of "carbon neutrality".

The Carbon Neutral Project has created ecological, economic and social benefits for the local community. For example, the Shangmei Plant in Suzhou Industrial Park used kitchen waste and landscaping waste to generate biogas as raw materials to supply electricity and heat for the plant. It not only met the production and office needs of the factory, but also provided a model for the operation and development of environmental protection projects such as kitchen and landscaping garbage in the Park and supported the development of environmental protection projects in the Park.

Besides its factories, L'Oréal also set goals for offices, training center, research and innovation center and Suzhou Dstribution Center. With all these achievements, L'Oréal China achieved carbon neutrality in 2019 and became L'Oréal Group's 1st market to complete carbon neutrality across the operation sites covering plants, distribution centers, R&I center and offices.

IMPACT & SUSTAINABILITY

As of 2019, L 'Oreal has reduced carbon dioxide emissions (in absolute terms) by 78% from 2005 levels, while production has increased by 37% over the same period. (Data source: 2019 "L 'Oreal China Sustainable Development Stage Achievements" report)

In 2020, L 'Oreal Group released a new sustainable development project "L 'Oreal for Tomorrow" and a series of ambitious goals for 2030, including three core strategies:

- Promote the transformation of its own business model and respect the boundaries of the earth;
- Empowering business ecosystems for the common transition to a more sustainable world;
- Contribute to global challenges and support pressing social and environmental needs.

Among them, in order to tackle climate change, the Group commits to:

- By 2025, all of L 'Oreal's operating facilities will be carbon neutral by increasing energy efficiency and using 100% renewable energy.
- By 2030, use environmental testing platforms to evaluate all formulations to ensure all products respect aquatic ecosystems.
- By 2030, ingredients and all biologically-derived materials in packaging will be derived from sustainable sources and traceable, ensuring zero deforestation.
- By 2030, 95% of ingredients in formulations will be based on renewable organisms, either derived from rich minerals or from recycling processes.

VANKE GROUP

ROAD TO "ZERO WASTE" MANAGEMENT

PROJECT OVERVIEW

As a pioneer for green development of the real estate industry, Vanke has been exploring "zero- waste" management since 2005. Based on the project management experience and public resources of Vanke Foundation, Vanke collaborates with the governments, NGOs, enterprises and other stakeholders to explore and promote new technologies and new methods for domestic waste management of urban and rural communities, and make "zero-waste" communities a reality in China.

In 2018, Vanke Foundation established "Community Waste Management" as its flagship project, using the research-pilot-empower-advocacy value chain as a mechanism to conduct and promote pilot projects in residential communities, commercial office buildings, and company offices. In 2019-2020, we have achieved remarkable results in zero-waste office, community waste management, and on-site resource utilization of organic waste.

COMPANY PROFILE

China Vanke Co., Ltd. (hereinafter "the Group" or "the Company") was established in 1984. After 30 years of development, it has become a leading city and town developer and service provider in China. The Group focuses on the three most vibrant economic circles nationwide and key cities in Midwest China. The Group first appeared in the Fortune Global 500 list in 2016, ranking 356th. It has since remained on the league table for four consecutive years, ranking 307th, 332nd, 254th and 208th respectively.

Vanke has been persistently providing good products and good services to the general public, satisfying people's various demands for a good life with its best efforts. Up till now, the ecosystem it has been constructing is getting into shape. In the property area, Vanke has always upheld the vision of "building quality housing for ordinary people to live in". While consolidating its existing advantages of residential property development and property service, the Group's businesses have been expanded to areas such as commercial development, rental housing, logistics and warehousing services, ski resorts, and education. This has laid a solid foundation for the Group to better satisfy people's needs for a good life and to achieve sustainable development. In the future, with "people's needs for a good life" as the core and cash flow as the basis, the Group would continue to "follow the fundamental rules of the world and strive for the best as a team" while executing the strategy of "city and town developer and service provider". The Group would constantly create more true value and strive to be a respectable enterprise in this great new era.

Vanke Foundation is a corporate foundation endowed and supported by China Vanke Co., Ltd. Approved by the State Council, it was registered in 2008 with the Ministry of Civil Affairs. Vanke Foundation has been certificated as a charitable organization since 2017. As a visionary pioneer, Vanke Foundation addresses issues with a profound impact on the future, aims for sustainable communities, and promotes environmental protection and community development.

PROJECT OUTCOME

- As of the end of 2019, the headquarters of Vanke had reduced office waste by 70%. Among the headquarters employees, 100% of them are aware of waste classification, 90% support the measure, and 80% can classify and dispose of waste correctly.
- The community waste management project covers 7 urban communities and 6 rural communities; launched 42 think tank and kitchen waste management projects, directly covering more than 200,000 people across 31 provinces (autonomous regions and municipalities).
- As of the end of 2020, Vanke had implemented waste classification in 52 cities across the country, covering 641 residential compounds and 307 office buildings, and 52 zero-waste office projects.

PROJECT HIGHLIGHTS

"The zero-waste office project manifests Vanke's pursuit of integrating business development with environmental responsibility. I appreciate it very much. Only when a company's public services exert a significant and positive impact on its competition environment, can it align its corporate social responsibility and economic targets. This is indispensable to the success of a company in market competition."

— Qimei Liao, Director of Shenzhen Domestic Waste Classification Administration Center

PROJECT IMPLEMENTATION

Zero Waste Offices

In 2019, Vanke Foundation launched the zero-waste office plan 2.0 according to the "3R" principle – "Reduce, Reuse, and Recycle". Accordingly, it organized awareness activities to engage employees in reducing waste generated, introduced the aerobic composting model to turn gardening/landscaping waste into organic fertilizers and used the black soldier fly larvae bioconversion technology to turn kitchen waste into bio-proteins and ultimately realize the biological cycle of substance.

Moreover, the Foundation took diverse measures from the source and to the end to ensure waste classification in the whole chain, including classified waste placement, collection, transport and treatment, etc. The implementation of the plan has reduced operational costs by a large margin, and realized waste reduction, classification and recycling, setting up an exemplar for waste classification and contributing to social sustainability.

In 2020, Vanke's zero-waste office plan continued to be carried out and further strengthened efforts in food waste and environmental education for employees. A total of 34 canteens in Vanke's branch nationwide participated in a campaign which celeberited "clear your plate" campaign to reduce food waste. People's Daily and other media outlets reported the company"s effort minimizing food waste.

Based on Vanke Group's experience, Vanke Foundation developed the Zero Waste Office Action Guide to provide sufficient guidance and reference for more companies to carry out zero-waste operations in office scenarios.

Zero Waste Communities

Vanke actively conducts zero-waste community activities such as waste classification, recycling and reuse, strengthens the efforts to raise public awareness of waste classification, and sees to it that the waste is effectively classified when it's disposed of. The Foundation also explores ways of kitchen waste treatment, i.e., with the help of the black soldier fly larvae or composting, with a view to fully recycle the community waste, build the integrated community waste classification and management model, and jointly create a green, low-carbon and clean residential community.

Case: Exploring The Nature-Based Kitchen Waste Treatement Path

Beijing Vanke Xishan Courtyard introduced black soldier fly larvae and the composting facility as a new way of decentralized kitchen waste treatment. Residents' kitchen waste was sorted and pulped before fed to the larvae in the facility. When the larvae were mature, they wete recycled or transported to the ecological circulation apparatus before the waste treatment station for fish feeding, and the water in the fish pond would be channeled to irrigate vegetables. The larvae's excrement landscaping waste such as fallen leaves and branches can be put into the composting facility to produce eco-friendly organic fertilizer. As of the end of 2019, by using the black soldier fly larvae for kitchen waste treatment, Beijing Vanke Xishan Courtyard had reduced 2.4 tons of greenhouse gas emissions and the organic fertilizer and fish feed alternatives thus reduced 34.1 tons of carbon dioxide equivalent.

Case: Beijing Domestic Waste Classification Demostration Community

In the community of the Ministry of Construction in Beijing, Vanke Property and the Aniu Charity Development Center in Shijingshan District, Beijing, coordinated the work of garbage classification from the three aspects of people, facilities and systems to focus on the difficulties and pain points of garbage classification in the community. Vanke assisted community party organizations to play an active role, straighten out the division of responsibilities between different entities inside and outside the community, promoted the consensus of all stakeholder, and explored the model of "party building and co-governance" of urban community waste classification. On December 2, 2020, the community was included in the "Beijing 2020 First Batch of Domestic Waste Classification Demonstration Communities (Villages)" list.

Pilot Project For Promoting Soil Improvement By Composting Garden Waste In Urban Communities (Spring Soil Action)

As a "leader" in the domestic property management industry, Vanke Property has always dared to take the lead, forge ahead, and continuously improve its service quality and management level. In order to promote the construction of "green ecological community", Vanke Property and Vanke Foundation carried out pilot cooperation to promote soil improvement in the community by exploring garden waste composting methods in pilot communities in selected cities, and used the experience to develop a treatment standard and trained personnels, and explored the local resource treatment mode of urban community, garden/greening waste.

Spring Soil Action, or urban community garden waste composting project is to promote soil improvement. We selected 11 pilot communities in 10 cities plus Hengqin island of Zhuhai, to carry out garden waste composting practice, through training compost teachers and implementing compost management standard to accumulate practical experience for the comprehensive promotion of community-level garden waste treatment and soil improvement. It was officially launched in October 2020. At present, 11 pilot communities have completed the production of simple compost bins, selected composting personnels, and completed the introductory composting learning courses. Composting practices have been fully rolled out. We hope to establish the demonstration effect of Vanke Property in the "green ecological community" through the exploration path of "pilot-lessons-promotion and personnel training".

In the meantime, Vanke

- actively promoted waste management in rural scenarios with six projects launched in rural communities, and adapted zero-waste management methods and technologies to more scenarios, so as to influence more groups and improve rural living conditions;
- raised public awareness of waste sorting through activities such as community waste management forums and "zero waste" contests to actively engage the public in zero waste management, and contributed to the construction of a clean and beautiful homeland;
- had accumulated abundant waste sorting experience and solidified the experience so as to support the implementation of related policies and promoted the "zero-waste" lifestyle on a larger scale. In 2019, we
    - formulated nine proposals during the "Two Sessions", including the Proposal on Implementing the Measurement and Charging of Mixed Waste in "Solid Waste Law" and the Proposal on Enhancing the Construction of Renewable Resources Recycling System;
    - Submitted the Proposal on Establishing a Long-term Mechanism for Waste Classification in "Solid Waste Law" and the Proposal on Cautiously Promoting Degradable Materials in "Solid Waste Law" ;
    - And contributed to local legislation and policy making on waste management in Beijing, Shenzhen, Yichang, and Fujian.

IMPACT & SUSTAINABILITY

In recent years, China has elevated waste classification, ecological conservation, and related community governance issues to the level of national development strategy. On June 3, 2019, President Xi Jinping remarked on waste classification that "Waste classification concerns the quality of living environment and resource conservation. It is also an important sign of civic-mindedness."

Upholding the "zero waste" management concept, Vanke strictly follows government regulations, and enhances management of waste generated in real estate development, property management and daily office work. Thus, we promote decentralized community waste management, waste classification and decentralized treatment of perishable waste, to reduce the waste transported to landfills and incineration as much as possible, hopefully to zero. In addition, we improve the resource utilization efficiency and strive to minimize human impact on the environment and create a "zero-waste" clean living environment.

CHINA CONSTRUCTION BANK GUANGDONG BRANCH

GREEN FINANCE FOSTERS GREEN GROWTH IN SOUTHERN GUANGDONG

PROJECT OVERVIEW

Since 2020, China Construction Bank Corporation Guangdong Branch has engaged in in-depth green finance efforts by vigorously improving its organizational structure, reinforcing research and collaboration with outside institutions, continuing to step up green finance investment in the Greater Bay Area, lending further support to infrastructure upgrading, energy conservation and environmental protection, clean production, clean energy. Guangdong Branch has devoted its operations to empowering industrial restructuring and transformation through professional, efficient and innovative financial services to help mitigate climate change. The efforts coincided with the integration of green finance with crucial and weak-link areas such as green agriculture, precision poverty alleviation and rural revitalization, with a view to strongly supporting the adaptation to climate change across sectors.

By the end of November 2020, Guangdong branch has established a Green Finance Committee to lead the quality advancement of green finance business in its jurisdiction, and established the "1+2" management structure of the Green Finance Committee, which governs a Green Finance Rollout Group and a Green Finance Implementation Group. It supports green transportation, clean energy, green manufacturing projects, with outstanding green loans at CNY98.881 billion, an increase of CNY34.319 billion compared with the beginning of the year. Of the total balance, CNY34.147 billion is in green infrastructure upgrades, CNY18.135 billion in clean energy industry, and CNY20.768 billion in the energy conservation and environmental protection industry.

In addition, Guangdong Branch has signed strategic partnership agreements with Guangdong Forestry Bureau, Guangdong Mining Association and Guangdong Environment Exchange; it was involved in the formulation of green credit standards for the Greater Bay Area with Guangdong Finance Bureau and Hong Kong Quality Assurance Agency; and involved in the drafting of service standards for green supply chain business of new energy vehicles in the Greater Bay Area.

PROJECT OUTCOME

In 2020, outstanding green loans stood at CNY98.881 billion, 2.5568 million tons of standard coal saved by the green credit-backed projects, 5.7864 million tons of CO2 emissions reduced and 5.30329 million tons of water saved.

- In 2019, helped Guangzhou Bus Group purchase new energy buses through its green leasing and financing business. It is estimated that the cost of electricity for EV buses is lower than the cost of fuel-burning vehicles by CNY92,400 per vehicle per annum, and the 3,138 EV buses of the project can save about 290 million yuan in operating costs annually. In addition, the vehicles can also save 34,592 tons of standard coal/year, reducing 198,030 tons of CO2 emission and 1,155 tons of NOx per annum when they are put into use.
- In 2020, a loan of CNY540 million was granted to Ming Yang Smart Energy Group to fund wind farm projects. It is estimated that the wind farm projects sponsored can produce 75,266,700 kWh of electricity per year, reducing 51,888.87 tons of CO2, 65.99 tons of SO2 and 106.75 tons of NOx emissions p.a., saving 23,106.88 tons of standard coal p.a.
- In 2020, the bank extended credit lines of over CNY5 billion to major green manufacturers like Gree and Midea, to support their energy saving and emission reduction efforts. It is estimated that the sponsored projects could every year save 62,400 tons of standard coal, reduce the emission of 149,700 tons of CO2 and save 58,000 tons of water.

COMPANY PROFILE

China Construction Bank Corporation Limited is a leading major commercial bank in China, headquartered in Beijing, with its predecessor, China Construction Bank, established in October 1954. The Bank was listed on the Hong Kong Stock Exchange in October 2005 (stock code 939) and on the Shanghai Stock Exchange in September 2007 (stock code 601939). The Bank's market capitalization as of the end of 2019 was approximately USD217.686 billion, ranking fifth in the world among listed banks. China Construction Bank is ranked second among global banks in terms of Tier 1 capital.

China Construction Bank provides comprehensive financial services including personal banking, corporate banking, investment and wealth management, employing a staff of 347,156 across 14,912 branches, serving hundreds of millions of personal and corporate customers. It has subsidiaries operating in various industries such as fund, leasing, trust, insurance, futures, pension and investment banking, and more than 200 overseas institutions at all levels covering 30 countries and regions.

The Guangdong branch was officially established in November 1986. Apart from its 1,072 operating branches across the province, Guangdong branch boasts of a flurry of "unmanned outlets" and "virtual counters" featuring the latest cutting-edge technologies, such as automatic teller machines, self-service banking and Internet banking, along with a number of financial network services launched in succession.

PROJECT IMPLEMENTATION

By establishing and improving the organizational structure of branches and further playing to the strengths of the Group, Guangdong Branch reinforced its innovation of green finance offerings and models, fully supporting the socioeconomic green transformation. It has also focused on the application of financial technology in the field of green finance and continued to deepen the green growth focus of its corporate culture.

In addition, the branch has signed Strategic Partnership Agreements with Forestry Administration of Guangdong Province, Guangdong Mining Association and Guangdong Environment Exchange; it co-developed the Guidelines for Promoting Green Credit in Guangdong Province with Guangdong Financial Supervisory Authority and Hong Kong Quality Assurance Agency, setting out green standards for clean transportation, clean energy and green buildings; it was involved in the drafting of new energy vehicle green supply chain service standards for the Greater Bay Area; it is committed to communicating and partnering with key stakeholders, in addition to perfecting its own capabilities of green financial services, to enable the formulation of green standards, consolidating the groundworks for the finance sector to support the green transformation and growth of the economy and society.

1. Optimize organizational structure

Guangdong Branch has built a three-tiered green management structure in Guangdong province, and created a benchmark of "green branch" in Huadu. The Branch set up a green finance committee at the provincial level, a green finance working committee at its Guangzhou Branch, and an industry-first green financial reform and innovation pilot “Huadu Branch” in Huadu District. The Huadu Branch offers green outlets and green windows. And it took the lead in setting up the regional-first green finance innovation center at Huadu Branch to promote green finance product innovation.

2. Provide comprehensive financial services for green enterprises

Guangdong Branch fully leverages the advantages of a full financial license, creates an assortment of multi-level green asset portfolios by strengthening business linkages among subsidiaries and taking the initiative to deploy loans, trusts, bonds and leasing, etc.

3. Promote green financial services

The development experience of Huadu Green Branch has been promoted to the second-tier branches within the jurisdiction, and the green priority has been adhered to, forming a green financial development landscape featuring full coverage of departmental lines and business operations, workforce-wide involvement, upward and downward linkage, and general rollout. All 20 Tier-2 branches of the Guangdong Branch have assigned dedicated and part-time staff for green finance business, covering all areas of green finance.

4. Fully support socioeconomic green transformation

In view of the industrial structure of Guangdong province and leveraging the opportunities presented by the pilot area of green financial reform and innovation, Guangdong Branch actively fosters clean transportation and clean energy in the Guangzhou area and set a benchmark for green development; in the Pearl River Delta, accelerates the promotion of new financing products such as pollutant and carbon emission rights-backed pledged loans, lending strong support to energy conservation and environmental protection, energy saving and emission reduction causes; in the east and west coasts, places focus on supporting the development of marine green industries; in the northern mountainous areas, provides comprehensive services in key areas such as ecological protection, conservation-minded development of tourism resources, ecological agriculture, animal husbandry and fishery, and sustainable forestry development.

5. Empowering green development with financial technology

Highly valuing the use of financial technology in the field of green finance, the FinTech division was included as a member department at the outset of the establishment of the Green Finance Committee. Guangdong Branch has built a green enterprise platform, widened green enterprise service scenarios, constructed an IT system for efficient operation of green finance, enabling differentiated management of green finance labels, information statistics, business processing and preferential pricing. Big data and Internet technology have enabled environmental and social risks to be embedded in the approval process and early warning to improve the effectiveness of risk control. The branch has had zero non-performing green loans for five consecutive years.

6. Foster green office culture

Guangdong Branch took initiative in practicing green growth philosophies and fully integrated the same into the branches' office culture. Since 2016, the Branch has organized a series of public welfare events (green commuting, green homeland, etc.) to promote the green philosophy; it has also promoted paperless office through financial technology and moved offline business online, reducing the use of paper by about 1/3.

IMPACT & SUSTAINABILITY

Guangdong branch vigorously promotes the improvement of its organizational structure and has built a three-tiered green management structure. The provincial branch set up a green finance committee, governing a green finance rollout group and a green finance implementation group. It has established the benchmark of "green branch" in Huadu and reproduced Huadu’s practice in the second-tier branches under its jurisdiction, establishing a green finance development landscape with full coverage of departmental lines and business operations, workforce-wide involvement, upward and downward linkage, and general, synchronized rollout.

Guangdong Branch will continue to focus on the zoning plans of Guangdong's Greater Bay Area to promote the integrated growth of green finance with key areas such as inclusive finance, precision poverty alleviation, manufacturing upgrading and rural revitalization on top of the existing green finance priorities. At the same time, the branch will focus on the industry attributes of green clients to actively explore and promote financial services innovation in green supply chain, clean energy, green agriculture, waste management, among other fields. Develop further the carbon emission rights-backed pledge financial services to cater to the traits of new collaterals, and accelerate the innovation of financial products such as environmental interests buyback, pollutant emission rights and forest rights.

CHINA CONSTRUCTION BANK SHANGHAI BRANCH

FINANCIAL INNOVATION FACILITATES ECO-FRIENDLY AND LOW-CARBON DEVELOPMENT

PROJECT OVERVIEW

Upholding the philosophy of "nature-first and green development", China Construction Bank Shanghai Branch focused its efforts of 2020 on promoting integrated development of the Yangtze River Delta with environmental protection as a priority, continued to improve the operational mechanism of green finance by delving deeper into robust management practices and mechanisms, products and services in key areas, financial technology, and omni-process control of businesses, thereby reinforcing management and funding allocation as fundamental safeguards for the transformation towards a green economy and climate change mitigation and adaptation. As of the end of 2020, Shanghai Branch had a CNY41.095 billion in outstanding green loan, an increase of CNY10.304 billion compared with the end of 2019, representing a growth rate of 33.46%.

On the one hand, efforts were made to draw up the Pilot Program of the Green Finance Pilot Outlet (Yangtze River Delta Pilot Zone Sub-branch) of Shanghai Branch following the masterplan of the Yangtze River Delta Green Integrated Development Pilot Zone was carried out, taking into account the industrial landscape, level of government support and the climate for green financial development in the Qingpu area, with a view to further improving the organizational and operation safeguards, building up lower-tiered green sub-branches and promoting green financial services.

On the other hand, ongoing efforts were made to roll out an assortment of financial instruments, such as green enterprise asset securitization and green wealth management, through vigorous green upgrading of infrastructure in the energy conservation and environmental protection sector, the clean energy sector, the environment sector, the clean production and green services sector, to propose potential solutions to green economic and regional transformation and eco-friendly development and actively address climate challenges by piloting a comprehensive financial model for eco-friendly, low-carbon, development.

PROJECT OUTCOME

Robust management and mechanism: the Pilot Program of the Green Finance Pilot Outlet (Yangtze River Delta Pilot Zone Sub-branch) of Shanghai Branch was formulated.

Focus on products and services in key areas: support was given to 54 businesses operating in green upgrading of infrastructure with a loan balance of CNY30.690 billion, accounting for approximately 74.68%.

Leverage the power of financial technology: green lending metrics/quota of the city branch and Tier 2 branches were incorporated into the monitoring platform, with monitoring programs developed independently.

Strengthen omni-process control of enterprises: "one-map index" + "green loan identification manual" were developed to enhance speedy pre-lending identification.

Support key projects through funding allocation to generate environmental benefits:

In 2019, supported the green building project in the Expo B area of Pudong New Area;

In 2020, supported the design and construction of the West Hongqiao Multi-Use Complex in accordance with the low-carbon construction guidelines of the Hongqiao Business District.

COMPANY PROFILE

China Construction Bank Corporation Limited is a leading major commercial bank in China, headquartered in Beijing, with its predecessor, China Construction Bank, established in October 1954. The Bank was listed on the Hong Kong Stock Exchange in October 2005 (stock code 939) and on the Shanghai Stock Exchange in September 2007 (stock code 601939). The Bank's market capitalization as of the end of 2019 was approximately USD217.686 billion, ranking fifth in the world among listed banks. China Construction Bank is ranked second among global banks in terms of Tier 1 capital.

China Construction Bank provides comprehensive financial services including personal banking, corporate banking, investment and wealth management, employing a staff of 347,156 across 14,912 branches, serving hundreds of millions of personal and corporate customers. It has subsidiaries operating in various industries such as fund, leasing, trust, insurance, futures, pension and investment banking, and more than 200 overseas institutions at all levels covering 30 countries and regions.

Established on October 1, 1954, Shanghai Branch started its operations by handling and managing national infrastructure investment and is committed to the development of national economy and improvement of citizens' standard of living, with an approach balancing tradition and innovation. It has a city-wide presence, a full range of services and comprehensive services capacity.

PROJECT IMPLEMENTATION

I. Build a robust management mechanism

1. A Green Finance Committee was set up by the city branch to spearhead the quality development of green finance business in its jurisdiction, with the general office operating from within the Risk Management division plus member divisions, covering front-office business operation, middle-office business support and back-office management. Points of contact were identified for green finance across all Tier 2 branches and sub-branches to enable bank wide synergy in joint support for the development of green finance.
2. A special meeting was held by the city branch to review the growth objective of green finance and align bank wide thinking, mandating a higher growth rate of green loans in comparison to the average growth rate of corporate lending, and prioritizing green finance in the allocation of bank wide resources.
3. Through a coordinated synergy mechanism, the city branch called a host of special meetings to study and formulate detailed rollout plan for green finance, contemplate the pass-through principles for green loan identification, share green financial information on credit lending, investment banking and asset management, sift through the eight-stage process of green building certification applications, and continuously enhance the expertise of credit lending staff in green finance.

To help green financial services penetrate lower-tiered outlets and locations, the Pilot Program of the Green Finance Pilot Outlet (Yangtze River Delta Pilot Zone Sub-branch) of Shanghai Branch was drawn up, identifying:

- Primary objectives: following the plan for integrated green development of Shanghai's Qingpu area in conjunction with the local climate for green finance development and the Bank's strategic positioning for green development, near-term and medium- and long-term objectives of the Yangtze river delta pilot zone sub-branch are laid down, encompassing business development metrics, risk management targets, and manifestation of social responsibility.
- Key assignments: 9 key assignments were identified centering on the near-term and medium- and long-term objectives of green finance of the Yangtze river delta pilot zone sub-branch, taking into account the attainability of the goals while addressing the problems at hand and the areas of potential breakthrough and innovation. In particular, these include research on crucial green sectors, green financial innovation, green financial services, green borrower rating, green team building, environmental and social risk management, green finance rollout evaluation and oversight, alert on pertinent risks, and communication and dissemination.
- Measures and resource safeguards: 1) build up a robust organizational structure and operation mechanism; 2) deep-dive new green finance models and product innovation; 3) optimize the green credit lending procedures and risk control; 4) prioritize in terms of resource allocation and build an evaluation mechanism; 5) strengthen team building and further enhance mindset and culture.

II. Lend a deeper purpose to green finance, and innovate products and services in key areas

Step up green credit support for primarily the clean energy industry and the green upgrading of infrastructure such as green transportation, building energy conservation and green building, widen the pool of offerings including green enterprise asset securitization and green wealth management. Engage in green enterprise asset securitization projects - investments were made to more than 20 projects, including photovoltaic power plants, wind power, thermal power and biomass power generation, via the financial leasing arm of State Power Investment Corporation; green wealth management funds were invested in a modern civil aviation system featuring safe, convenient, efficient and green services to facilitate the development of the hub network of China Eastern Airlines Group.

To solidify green finance as a magnet for private-sector resources, the branch engaged in in-depth communication and discussions with outside organizations such as Shanghai Research Institute of Building Science and Shanghai Green Building Council, and advised the Ministry of Housing and Urban-Rural Development on the draft Directive Catalog for Building Energy Conservation and Green Building Industry, taking into account the circumstances of the region, especially the requirements of the integrated green development of the Yangtze River Delta. The advice proposed also covered the scope of green building identification, optimizing green building certification of prefabricated buildings, and green building logo certification for overseas institutions. Through ongoing collaboration with specialist institutions and government agencies in green building, constant efforts were made to set out more optimized standards of financial support for green buildings, laying solid groundwork for further leveraging the role of finance in resource allocation in the green building sector.

As of the end of 2020, the branch had CNY41.095 billion in outstanding green loan, up by CNY10.304 billion from the end of 2019, representing a growth rate of 33.46%. CNY19.879 billion were lent to 21 green transportation companies, and CNY8.620 billion were lent to 29 building energy efficiency and green building projects. 15 enterprises operating in the clean energy industry received support, with a loan balance of CNY4.834 billion, accounting for approx. 11.76%.

III. Leverage the power of financial technology in digital innovation

1)with the help of financial technology, green loan metrics/quotas of the city branch and tier 2 branches were incorporated into the monitoring platform to dynamically monitor the changes in green loan balances, shift from ex-post supervision to daily process monitoring, and link up green loan data between branches and front- and back- offices; 2) environmental monitoring programs were developed independently, and python crawler software were employed to capture in bulk information from the Municipal Environmental Protection Bureau, timely grasping information on clients that pose environmental and societal risks.

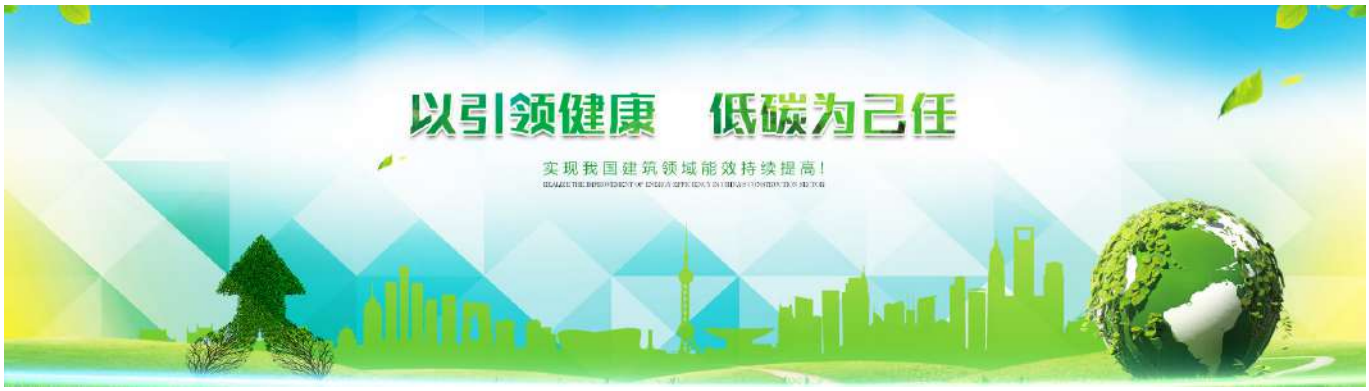
IV. Consolidate business management foundation and strengthen omni-process business control

Review the features of green industries and produce the "one map index" + "green loan identification manual" to improve the ability of speedy pre-lending identification. Play out the advantages of the expertise and dedication of the approvers, take initiative to implement a "once-over" mechanism to 1) implement a rigorous "one-vote veto" system for clients that pose environmental risks; 2) implement a post-lending inspection and rectification mechanism through self-inspection by tier 2 branches and spot check by tier 1 branches.

IMPACT & SUSTAINABILITY

In furtherance of a comprehensive financial model featuring eco-friendly and low-carbon development and the integrated green development of the Yangtze River Delta, Shanghai Branch has drawn up the Pilot Program of the Green Finance Pilot Outlet (Yangtze River Delta Pilot Zone Sub-branch) of Shanghai Branch, pushed for the establishment of a green finance committee by the city branch, enhanced its workforce's green finance expertise, prioritized green finance in the allocation of bank wide resources, and further established robust management practices and mechanisms. At the same time, the branch focused on innovating its offerings in the green upgrading of infrastructure, leveraged financial technology and digital technology to incorporate green loan metrics of the city branch and tier 2 branches into the monitoring platform, and independently developed environmental monitoring programs; it also strengthened omni-process business control by producing "one map index" + "green loan identification manual".

In tandem with its ongoing efforts of rolling out "fusion of capital (financing) + fusion of wisdom" for green buildings, the branch has continually strengthened its review of the status quo and analysis of future trends to provide insight in the preparations for the next steps. In light of the energy savings from China's urbanization and the presumed trends of green transformation of existing buildings, as well as the role of green buildings in the green upgrading of related industrial chains as a driver and facilitator, the branch will delve ever deeper into the new development philosophy, further innovate the service offerings and models of green finance, to 1) focus on delivering adequate financial support for energy conservation and green transformation of brownfield residential buildings and regeneration projects; 2) focus on the green industrial chain of the construction sector to actively promote the green transformation and upgrading of the construction industrial chain, and lend support to construction companies with green production capabilities, relying on the new technology and instruments of risk assessment, prevention and control brought about by financial technology.



CHINA ASSOCIATION OF BUILDING ENERGY EFFICIENCY INITIATES CHINA BETTER BUILDING ACTION

PROJECT OVERVIEW

In 2016, China Association of Building Energy Efficiency and Lawrence Berkeley National Laboratory jointly planned to initiate China Better Building Action, drawing on the experience of the Better Building Action launched by the US Department of Energy in 2010, to build China Better Building Action into a public welfare platform, invite stakeholders to participate and promise to improve building energy efficiency by 10-20% within 5-10 years, and at least 2% annually bid. 2017-2020 is the incubation period of China Better Building Action projects, with the goal of 50 building owners participating in the challenge, with a total area of 5 million m^2. The project development period is from 2020 to 2025, and the target is 100 building owners to participate in the challenge, with a total area of 12 million m^2.

Since its launch, China Better Building project has successfully invited 72 partners, 5 partners in pilot cities and 6 partners in accelerators, with a total challenge area of 7.17 million m^2, a total energy saving of 45,577 tons of standard coal and a total carbon emission reduction of 95883 tons of CO_2, forming 40 excellent practice cases and holding 20 publicity and promotion meetings. Among them, from 2019 to 2020, 28 building owners were successfully invited to participate in China Better Building, with a total challenge area of 2.47 million m^2, a total energy saving of 23,216 tons of standard coal, and a total carbon emission reduction of 53,108 tons of CO_2.

PROJECT OUTCOME

- 2019 – 2020, 28 projects participated the China Better Building Action, with a total challenge area of 2.47 million m^2, a total energy saving of 23,216 tons of standard coal, and a total carbon emission reduction of 53,108 tons of CO_2.
- As of 2020, 72 projects have participated in China Better Building Action, with a total construction area of 7.17 million m^2, an average energy saving rate of 10-25%, a total energy saving of 45,577 tons of standard coal and a total carbon emission reduction of 95,883 tons of CO_2.

ORGANIZATION PROFILE

China Association of Building Energy Efficiency (CABEE) is a national association approved by the State Council and the Ministry of Civil Affairs of China, administered by the Ministry of Housing and Urban-Rural Development of China. CABEE was founded in 2010. It is a non-profit organization, mainly engaged in the field of building energy conservation and green building community standards, certification and identification, technology promotion, international cooperation, exhibition training and other services.

CABEE
中国建筑节能协会

The purpose of the association: implement the decision-making and deployment of the Central Committee and the State Council, implement the general policy of ecological civilization construction, uphold the development concept of "innovation, coordination, green, open and sharing", adhere to the people-oriented, legal promotion, and the basic national policy of resource conservation and environmental protection, in accordance with the strategic objectives of urban and rural development and energy conservation and emission reduction in China, so as to create a "green and healthy "building. Facing the government, industry, market, enterprises, and employees, to promote the sustainable development of the construction industry.

Vision of the association: to lead the development of buildings in the direction of higher energy efficiency and health, and to create a sustainable living environment for future.

Common values: excellence, service, innovation, tolerance and cooperation.

PROJECT HIGHLIGHTS

According to the types of building owners, China Better Building project sets different goals. The main goals are as follows:

1. New buildings: The energy efficiency design standard should be one level or more than 20% higher than the local mandatory standard. After one year of actual operation, the participating buildings need to provide complete operation data to assess the performance of the buildings and determine whether they are up to the standard.
2. Existing buildings: Based on the energy consumption baseline, according to the later operation data of the project, determine whether it meets the energy saving standard. There are three baseline setting methods: 1. Take the statistical average building energy consumption of the same type of local buildings as the baseline, and refer to the Statistical Research Report on building energy consumption in China issued by the team of China Better Building energy efficiency accelerator; 2. Take the operation data of any complete year within 2-3 years before participating in the project as the baseline; 3 The relevant data of building energy consumption statistics released by the local housing and construction department is taken as the baseline.

PROJECT IMPLEMENTATION

China Better Building Action was initiated to promote the energy efficiency improvement of existing buildings in a bottom-up way. The project has built platforms such as technology and product accelerators, integrated solution center, publicity and promotion commendation action, and green financial support, providing comprehensive services for building owners participating in China Better Building project, and solving the problems of system, technology, and resources in the process of energy efficiency improvement obstacles, promote the determination of building owners to improve their building energy efficiency.

Taking Shanghai as a pilot city, we signed a cooperation agreement with Urban Renewal and Low Carbon Project Management Center of Changning District, Shanghai to carry out building energy efficiency improvement project in Changning District. The team has screened and identified landmark buildings with high energy consumption, large building area and low efficiency of energy consumption system in Changning District of Shanghai. From 2019 to 2020, we has screened 14 projects in Changning District, with a total area of 780,000 m^2, a total energy saving of 5,435 tons of standard coal, a carbon emission reduction of 11,772.8 tons of CO_2, and an energy efficiency improvement of more than 20%. China Better Building project team assisted Changning District in promoting the building energy efficiency improvement of the above projects in terms of fund, technology and benchmarking, mainly including:

1. Assist Changning District in "Changning District public building energy efficiency benchmark management regulations", clarify the methods and results of benchmark determination, and lay a good foundation for the development of energy efficiency benchmark.
2. Assist Urban Renewal and Low Carbon Project Management Center of Changning District to build energy efficiency benchmark platform. The "energy efficiency management" module is added to the "building energy efficiency monitoring and management platform in the change area", which includes energy use data declaration, personal benchmark analysis and other functions.
3. Assist Urban Renewal and Low Carbon Project Management Center of Changning District to select office buildings and hotel buildings in Changning District. A total of 93 benchmark buildings were selected, including 72 office buildings (accounting for 90% of the office buildings in Changning District) and 21 hotel buildings (all are three-star hotels or above).
4. To strengthen the interaction with buildings and improve the implementation rate and accuracy of the basic data report of energy efficiency benchmark, two training courses on energy efficiency benchmark were organized by the Urban Renewal and Low Carbon Project Management Center of Changning District on June 4 and December 2019.
5. Assist Urban Renewal and Low Carbon Project Management Center of Changning District to guide building owners and property service units to fill in data through training courses and on-site visits. In addition, check the data, including building area, energy consumption data and calibration coefficient. If there are problems in data collection, the team had timely communicated with the property service department to modify and improve the data.
6. Promote and publicize the experience of building energy efficiency improvement project in Changning District of Shanghai in Qingdao C40 City Project summit, China Better Building pilot city work conference, China Association of Building Energy Efficiency Achievement conference and other meetings.
7. With the support of "Shanghai low carbon city green energy project" by the World Bank and Global Environment Facility, the team had given full play to the role of market mechanism and social enterprises to strengthen the comprehensive transformation of buildings. In 2019, the government of Changning District had allocated 6.75 million yuan for improving energy efficiency and reducing carbon emission and 15 million yuan for promoting low carbon development.

List of Participating Buildings In Changning District, Shanghai

No.	Name of building	Area(m^2)
1	Shenya Center	23697.3
2	Millennium Hongqiao Hotel	44797.8
3	Shanghai Xietai Building	31803.19
4	Far East International Building	103355
5	Wenguang building	42229
6	Radisson Plaza Xing Guo Hotel	59643
7	Mercure Shanghai Royalton	22778.89
8	Xinda mansion	34267
9	Gubei Fortune I	38881
10	Tongren hospital	101516
11	Zhong Sheng Financial Building	37000
12	Longemont Yes Tower	92956
13	Zhaofeng multimedia	55410
14	International trade center	92518
	Total	**780852**

IMPACT & SUSTAINABILITY

- Mechanism innovation: China Better Building platform is a bottom-up attempt to promote energy efficiency improvement of existing buildings. It integrates experts, technology, products, finance and other resources of building energy efficiency industry to provide personalized services for building owners, and China Better Building Action, which is defined as a public welfare project to serve the government, market, industry and building owners, employees, etc.
- Technology Innovation: develop energy efficiency benchmarking tools, which can efficiently and quickly track the operation status of buildings, reduce the workload of building energy audit, and reduce the impact on the work of building owners.
- In the future, the promotion mode will still be carried out from the city level, with more regional associations (such as China Energy Conservation Association, Regional Energy Investment Association), scientific research institutions (Tsinghua University, provincial and municipal construction research institutes) and so on. At the same time, it is necessary to strengthen the shaping of the brand influence of China Better Building projects and attract more building owners to participate. Broaden the field of energy efficiency improvement, not only for the building itself, but also increase the regional energy system, solar photovoltaic and thermal, centralized refrigeration system, etc. Finally, it is necessary to maintain close communication with national government departments to promote building energy efficiency improvement projects through top-down and bottom-up ways.
- During the 14th Five Year Plan period, it is expected to attract more than 100 building owners to participate in the project, with a total area of 12 million square meters and an average energy saving rate of 10% - 20%. The energy saving potential is 50,000 tons of standard coal and the emission reduction is 100,000 tons of CO_2.

排版印制 / 136 7111 7637
mirodesign
米罗空间品牌设计

printed on eco-friendly paper

CBCA

CHINA BUSINESS CLIMATE ACTION

中国企业气候行动