



中节能翼和

# 2023

# Sustainability Report

CECEP (Hubei) SDG Industry Equity  
Investment Fund Limited Partnership

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## Abbreviation Table

CECEP (Hubei) SDG Industry Equity Investment Fund Limited Partnership	for short	CECEP (Hubei) Fund
CECEP Yihe (Hubei) Private Equity Fund Management Co., Ltd.	for short	CECEP Yihe
CECEP Capital Holding Co., Ltd	for short	CECEP Capital
China Energy Conservation and Environmental Protection Group Co., Ltd.	for short	CECEP
Daiwa Corporate Investment Co., Ltd	for short	Daiwa Investment
Changjiang Industry Investment Group Co., Ltd.	for short	Changjiang Industry Investment
Hubei High-tech Industry Investment Group Co., Ltd.	for short	Hubei High-tech Investment
National Green Development Fund Co., Ltd.	for short	NGDF
Hubei Wings Investment Management Co., Ltd.	for short	Wings Investment
Chongqing Polycomp International Corporation	for short	Polycomp International
Yueyang Xingchang Petro-Chemical Co., Ltd.	for short	Yueyang Xingchang
Wuhan Easy-Sight Technology Co., Ltd.	for short	Easy-Sight
3R Environmental Technology Co., Ltd.	for short	3R
Anhui Yingfa Ruineng Technology Co., Ltd.	for short	Yingfa Ruineng
Hunan Yacheng New Energy Co., Ltd.	for short	Yacheng New Energy

- Polycomp International: independently designed and built all of wastewater treatment facilities. Through continuous innovations and optimization, it has long been at an advanced level in the industry and the locality.
- Yueyang Xingchang: absorbing materials have been widely applied in tail gas treatment equipment in the wastewater purification tank to reduce wastewater discharge, contributing to the protection of water resources.
- Easy-Sight: created an output value of **¥146.00** million in pipeline repair materials and services, and equipment maintenance, making **5** million people accessible to healthy and safely managed water, and reducing the number of deaths and illnesses caused by water pollution.
- 3R: reduced industrial wastewater discharge by means of comprehensive resource utilization of waste acid, and applied flocculants in wastewater treatment to strengthen recycling.
- Yacheng New Energy: applied zero discharge technology in wastewater treatment, achieving zero discharge of wastewater. It sold by-product ammonium sulfate as fertilizer to strengthen recycling.



- Polycomp International: the glass fiber reinforced composite material produced can effectively reduce the weight of the entire vehicle, significantly reduce fuel consumption of fuel vehicles, and improve the range of new energy vehicles. Meanwhile, it can also manufacture longer and finer wind turbine blades, increase the capture of wind energy, improve power generation efficiency, and effectively promote the development of the clean energy industry, helping to achieve the dual carbon goals.
- Yueyang Xingchang: developed new energy-efficient and carbon reduction technologies to meet the development demands of "reducing fuel oil and increasing chemicals". It shifted from the conventional refining and chemical process route to the development and promotion of advanced technologies and efficient equipment, achieving energy efficiency and carbon reduction effectively, and occupying a commanding height in this technology.
- 3R: produced new energy product iron phosphate, with a total planned production capacity of nearly **60,000.00** tons per year, boosting the development of the new energy industry.
- Yingfa Ruineng: produced **16,730.00** MW of solar cells, generated **32.479** billion kW-h of clean electricity, providing reliable modern energy services to the society, advancing the development of clean energy, and reducing carbon dioxide emissions.
- Yacheng New Energy: produced **8,000.00** tons of cobalt tetroxide, **1,800.00** tons of cobaltous hydroxide, and **210,000.00** tons of iron phosphate, which can be used to generate **1.19** million kW-h of clean electricity, effectively promoting the development of the new energy industry chain and contributing to carbon peaking and neutrality.



- The six projects provided at least **13,515** jobs in 2023. Where
- Polycomp International: provided **6,238** jobs.
  - Yueyang Xingchang: provided **696** jobs.
  - Easy-Sight: provided **348** jobs, of which **1** is for a disabled person, and **24.00%** are for females.
  - 3R: provided **773** jobs (**18.00%** for females).
  - Yingfa Ruineng: provided **4,546** jobs, of which **30.00%** for females.
  - Yacheng New Energy: created **914** jobs (**22.00%** for females).
- (Note: The data for jobs of Polycomp International and Yueyang Xingchang is for 2022.)



## Core Progress in 2023

- The six projects spent **¥652.43** million on R&D in 2023. Where
- Polycomp International: **¥229.40** million of R&D expenditure.
  - Yueyang Xingchang: **¥36.13** million of R&D expenditure
  - Easy-Sight: **¥13.46** million of R&D expenditure, percentage of R&D personnel at **20.00%**, obtained **228** patents in total, including **31** inventions granted, **122** utility models granted, **50** appearance patents granted and **25** software copyrights granted.
  - 3R: **¥43.75** million of R&D expenditure, obtained **43** patents in total, including **24** inventions and **19** utility models, **13** software copyrights, led or participated in the formulation of **11** national standards and **23** industry standards
  - Yingfa Ruineng: **¥285.10** million of R&D expenditure, percentage of R&D personnel at **11.00%**, obtained **111** patents in total, including **25** inventions granted, **86** utility models granted, and **18** inventions are under application.
  - Yacheng New Energy: **¥44.59** million of R&D expenditure, percentage of R&D personnel at **14.00%**, obtained **60** patents in total, including **44** inventions and **16** utility models.
- (Note: The R&D data of Polycomp International and Yueyang Xingchang is as of September 2023.)



# SUSTAINABLE DEVELOPMENT GOALS



- The six projects reduced by at least **26.76** million tons<sup>1</sup> of CO<sub>2</sub> emissions in 2023, Where
- Polycomp International: used the "tip-burn + pure oxygen-supporting combustion + electric boosting" technology to make glass melting much more efficient, reduce energy consumption significantly, and improve the quality and operational stability of glass liquid effectively, lower production costs, and reduce emissions and environmental pollution.
  - 3R: reduce **607.20** tons of CO<sub>2</sub> emissions, contributing to carbon peaking and neutrality.
  - Yingfa Ruineng: saved **9,766,435.30** tons of standard coal, and reduced **26,762,696.00** tons of CO<sub>2</sub> emissions, **2,695.76** tons of sulfur dioxide emissions, **4,319.71** tons of nitrogen dioxide emissions, and **552.14** tons of carbon dust emissions, contributing to carbon peaking and neutrality.
  - Yacheng New Energy: reduced **357.83** tons of coal consumption and **980.56** tons of CO<sub>2</sub> emissions, contributing to carbon peaking and neutrality.
- Note: Calculate based on data from 3R, Yingfa Ruineng, Yacheng New Energy.



- Polycomp International: the refractory material processing and recycling device independently designed and built recycled platinum and rhodium metals, providing an economical and eco-friendly beneficial way that promotes resource recycling.
- Yueyang Xingchang: treated exhaust gas by electric defogging + alkaline washing and treated oil and gas by condensation + adsorption + water washing, reducing pollutants and providing an eco-friendly beneficial way that promotes green economy.
- 3R: recycled hazardous wastes, including **184,000.00** tons of waste acids, providing an eco-friendly beneficial way that promotes green economy.
- Yingfa Ruineng: the Fishpond Solar Farm system generated clean energy, providing an economical, eco-friendly, and social beneficial way that promotes green economy.
- Yacheng New Energy: adopted a two-step process to expand sources of raw materials and reduced the quality requirements for raw materials, and applied the new energy-efficient process to reduce natural gas and electricity consumptions of products, providing an economical and eco-friendly beneficial way that promotes green economy.



- Easy-Sight: produced **689** sets of inspection equipment, and **21** sets of repair equipment, **180,600.00** meters of repair materials, and assisted in repairing about **180,600.00** meters of wastewater pipelines.
- 3R: produced **202,000.00** tons of ferric chloride and its polymers, and ferrous chloride using Fe<sup>2+</sup> and Fe<sup>3+</sup> recycled from waste acids.

Note : According to the *Annual Report on Development of China's Power Industry 2023* issued by the China Electricity Council, in 2022, the standard coal consumption of thermal power plants with a capacity of 6,000 kW and above was 300.70 g/kWh, the CO<sub>2</sub> emissions per unit of thermal power generation was about 824 g/kWh, and the emissions of soot, sulfur dioxide, and nitrogen oxides per unit of thermal power generation were 17mg/kWh, 83mg/kWh, and 133 mg/kWh, respectively. In this case, the generation of every 1 kWh of solar electricity may save 300.70 g of standard coal per year, and reduce CO<sub>2</sub>, sulfur dioxide, nitrogen dioxide, and carbon dust emissions by 824 g, 0.08 g, 0.13 g, and 0.02 g respectively.

## About CECEP (Hubei) Fund

CECEP (Hubei) SDG Industry Equity Investment Fund Limited Partnership was established in Wuhan, Hubei on October 26, 2020, and registered with the Asset Management Association of China on June 11, 2021. It was co-founded by CECEP Yihe, CECEP Capital, Daiwa Investment, Changjiang Industry Investment and NGDF jointly invested and established.

By the end of 2023, CECEP (Hubei) Fund totally invested ¥227.35 million, a year-on-year increase of 36.09%. All investment projects belong to green industries, as well as energy efficiency and environmental protection industries (including clean energy industries).



CECEP (Hubei) Fund totally invested

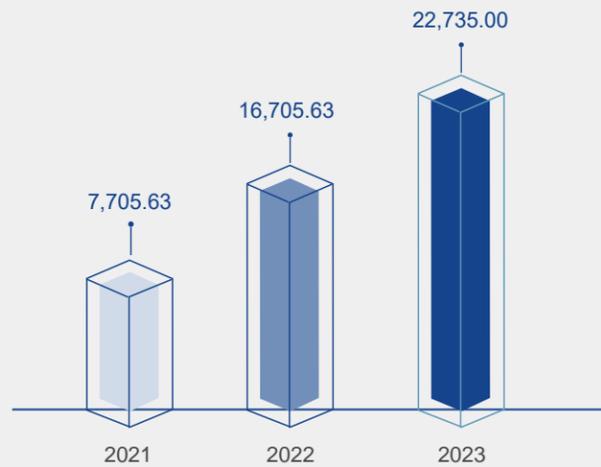
**¥227.35** million



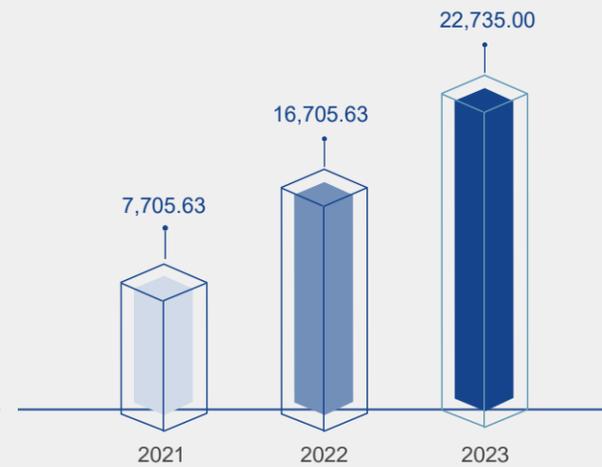
a year-on-year increase of

**36.09%**

Investment scale in green industries (RMB 10,000)



Investment scale in environmental protection industries (RMB 10,000)



Percentage of investment in green industries in 2023

**100%**

Percentage of investment in energy efficiency and environmental protection in 2023

**100%**

## Investment Philosophy

Sustainable investment is one of increasingly influential investment strategies in the field of investments today. With the increasing global attention to environmental, social and corporate governance issues, more and more investors have turned their eyes to sustainable development and incorporated it into their investment decisions. CECEP Yihe, as the fund manager, is committed making contributions to SDGs and making investment in combination with the great protection of the Yangtze River strategy.

## Investment Standards

CECEP (Hubei) Fund invests in line with the SDGs, and gives priority to SDG-compliant projects. Its fund managers evaluate the contribution to the SDGs according to project operation materials provided by invested enterprises on a regular basis, including qualitative and quantitative indicators of project operation.

### Key SDGs Goals



### Other SDGs Goals

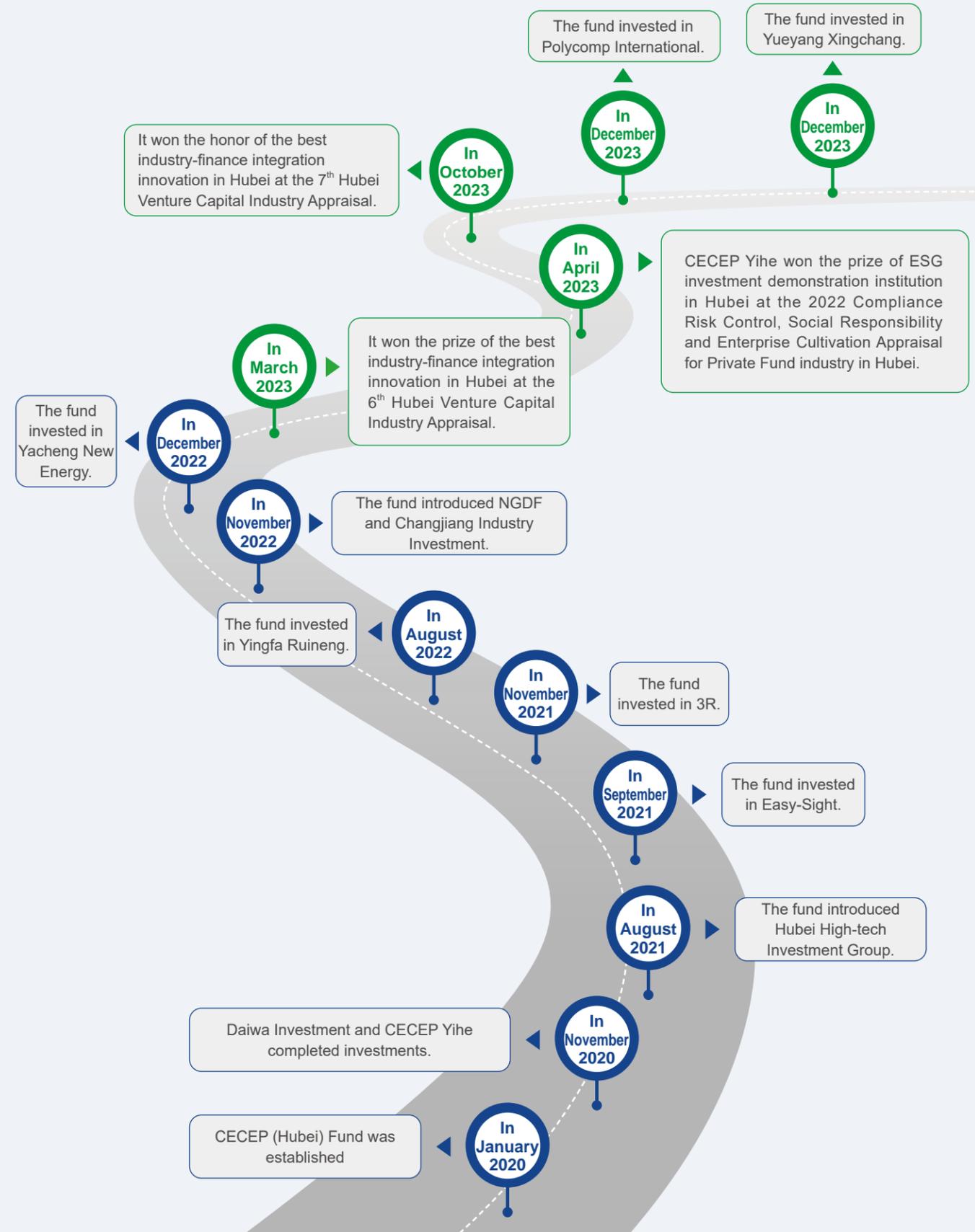


## Investment Fields

CECEP (Hubei) Fund focused on investment in the Yangtze River Economic Belt, with the largest city in the Yangtze River Basin as its base, investing at least 60% of its paid-in capital in energy efficiency and environmental protection. Its investment priorities include companies using cutting-edge environmental protection technologies and materials, and those providing products and services that promote environmental protection. This is beneficial for medium and large mature enterprises to make more investments in photovoltaic, wind power and green chemical industries, ultimately boosting the great protection of the Yangtze River.



## Chronicles of Events



# Contribution to SDG7 (Affordable and Clean Energy)



According to the *Sustainable Development Goals Report 2023: Special Edition*, the world has kept moving towards sustainable energy goals, but at a lower speed rate. At the current rate, about 660.00 million people will remain unable to access electricity, and nearly 2.00 billion people will still rely on polluting fuels by 2030. To ensure that everyone has access to energy by 2030, it is necessary to accelerate electrification, make more investments in renewable energy, increase energy efficiency, and formulate supportive policies and regulatory frameworks.

CECEP (Hubei) Fund will focus on investing in clean energy enterprises, mainly companies using cutting-edge environmental protection technologies and materials, and those providing products and services that promote environmental protection. Furthermore, it will strengthen post-investment empowerment to boost the development of the clean energy industry and contribute to SDG7 Affordable and Clean Energy.

UN 2030  
SDGs

7.1 By 2030, ensure universal access to affordable, reliable and modern energy services.

China's  
counter-  
measures

China will achieve comprehensive coverage of affordable, reliable and sustainable modern energy services by 2030. It will implement energy projects to benefit the people, and accelerate photovoltaic poverty alleviation projects and energy development projects in poor areas.

Investment  
projects  
and  
counter-  
measures  
of CECEP  
(Hubei)  
Fund

- Polycomp International's high-performance special-purpose glass fiber products, and Elium, a kind of liquid thermoplastic resin of Arkema Group, provided excellent solutions for efficient recycling and resource reuse.
- 3R launched new energy product iron phosphate in the field of new energy battery materials, and deployed new energy material production lines in all of its six subsidiaries, with a total planned production capacity of nearly 60,000.00 tons/year.
- Yingfa Ruineng adopted advanced and efficient production equipment and test lines to continuously improve the production efficiency and quality of solar cells and expand the production of solar cells, boosting the development of the photovoltaic industry effectively.
- Yacheng New Energy adopted the advanced ammonia process to improve the production capacity and reduce energy consumption and costs, promoting the development of the new energy industry chain effectively.

## Outcomes in 2023

**Polycomp International:**

Its glass fiber reinforced plastics effectively reduced the total weight of vehicle, significantly decreased fuel consumption of fuel vehicles and increased the driving mileage of new energy vehicles, boosting the development of the clean energy industry effectively and contributing to carbon peaking and neutrality.

**3R:**

Iron phosphate, a new energy product, rolled off the production line successfully, with a total planned production capacity of nearly

60,000.00 tons per year

**Yingfa Ruineng:**

The production of solar cells was

16.73 GW

A year-on-year increase of

198.00%

The annual power generation was

32.48 billion kW·h of clean electricity

A year-on-year increase of

198.00%

**Yacheng New Energy:**

Cobalt tetroxide predicted

8,000.00 tons

Cobaltous hydroxide

1,800.00 tons

Iron phosphate

210,000.00 tons

Which can be used to generate

1.19 million kW·h of clean electricity



**Polycomp International boosts innovative development of recycled wind turbine blades**

In 2023, high-performance special-purpose glass fiber products developed by Polycomp International were applied in trial production of nearly 100 meters of recyclable thermoplastic blades and rolled off the production line successfully, driving wind turbine blade materials towards the recyclable thermoplastic material system and making a new technological breakthrough.

Polycomp International gave full play to its experience in developing glass fibers for engineering plastics. In the face of problems in matching ordinary fibers with the thermoplastic resin system for wind power, it applied new ideas and innovative methods to tackle such technical difficulties as interface bonding, wettability and mechanical properties. After rounds of scientific experimental design and repeated verifications, it successfully mastered the development and production process of high-performance fiber glass based on thermoplastic blades.



**3R's new energy product iron phosphate rolls off the production line officially**

In November 2023, 3R officially produced ferric phosphate dihydrate, indicating that the company got iron phosphate production and sales on track and took a big step forward in the field of new energy battery materials. Iron phosphate is mainly used to manufacture the positive electrode of lithium iron phosphate batteries. Due to its thermal stability, iron phosphate is an ideal electrode material for electric vehicles. Besides, it is also one of the few approved molluscicides used in organic agriculture, and can also be used as a catalyst and in the field of ceramic manufacturing.

Since its establishment in 2003, 3R has continuously strengthened research on ferric salt products both in breadth and depth, expanding their types and added value. By relying on advanced impurity removal and oxidation processes and equipment, it produced new energy products with low heavy metals, including iron phosphate, ferric hydroxide oxide and iron-chromium electrolyte. In order to better meet market demands, 3R deployed new energy material production lines in all of its six subsidiaries, with a total planned production capacity of nearly 60,000.00 tons/year.



**The first cell of Yingfa Ruineng's high-efficiency crystalline silicon solar cell project phase II rolls off the production line, indicating successful launch of the project phase III and IV**

On July 31, the first 12GW N-type TOPCon high-efficiency solar cell of Yibin Yingfa Deyao project phase II rolled off the production line successfully. On the same day, the project phase III of 16.00GW high-efficiency crystalline silicon solar cells and the project phase IV of 20.00GW Czochralski monocrystalline silicon rods started smoothly to further expand the company's high-efficiency battery production capacity. After all of the projects are completed and put into operation by 2024, Yingfa's battery production capacity is expected to increase to 50.00GW, making the company among the first echelon of professional battery producers.

Yingfa Ruineng signed contracts of the four phases of the project with Yibin High-Tech Zone, with a total investment of ¥21.50 billion. After comprehensive completion and full production of the project, it will achieve an annual output of over ¥50 billion, which will further enhance the competitiveness and influence of Yingfa's brand, and inject vitality into the development of Yibin's photovoltaic industry and the construction of a national-level photovoltaic industry cluster.



**The testing efficiency of Yingfa Ruineng's N-type Topcon solar cell achieves 26.21%**

In November 2023, Yingfa Ruineng received a test report on its TOPCon bifacial solar cell from China National Accreditation Service for Conformity Assessment. The results showed that the testing efficiency of N-type TOPCon bifacial solar cell independently developed by Yingfa Ruineng reached 26.21%, which not only set a new historical high in Yingfa Ruineng, but also led the new energy sector.

As early as January 2023, the efficiency of Yingfa Ruineng's N-type solar cell attained 25.20%, with a yield rate of over 90.00%. Subsequently, the mass production efficiency of new product DeCon that was released at 2023 World Power Battery Conference and Power Battery Green and Low-Carbon Travel Exhibition in Shanghai reached 25.50%. In November, after continuous optimizing its various technological processes and materials, Yingfa Ruineng further improved the cell conversion efficiency to 26.21%, which was the advanced level in the industry.

This project adopted the N-type silicon wafers with a high technical accessibility and leading indicators as well as the tunnel oxide passivated contact technology, which could introduce the advantageous large-sized technology into the manufacturing process of N-type TOPCon solar cells, and give full play to upstream and downstream linkage to digest oversized silicon wafers. While reducing production costs, it ensures a high energy conversion efficiency of batteries.



**Yacheng New Energy conducts refined management over the 300,000.00 tons/year iron phosphate integration project**

The 100,000.00 ton/year iron phosphate project phase I of tons/year, in which Yacheng New Energy invested ¥1.20 billion, was completed and put into operation by the end of 2022, and achieved a total output of ¥280.00 million in the first three quarters of 2023. With a planned investment of ¥4.60 billion, the project phase II covers an area of 1,300.00 mu, and is planned to build a 200,000.00 ton/year iron phosphate production line and put it into operation in the second half of 2025. In the future, the production capacity of Guizhou Yayou will be three times that of the headquarters base.

The project designed a modular intelligent plant equipped with a leading iron phosphate production process in China. During the construction, in addition to pipelines for space, water, electricity, gas, network and communication, it is also designed with the intelligent video monitoring system, the intelligent lighting system, the ventilation and air conditioning system, the intelligent security and alarm system, the intelligent access control card system and the intelligent fire alarm systems. In particular, the intelligent video monitoring system can identify abnormalities from monitoring screens, and give the alarm in the fastest and best way.

Interconnection and comprehensive network-based communication of equipment are achieved to improve production coordination and process control and build intelligent plants under refined management. Intelligent production lines are the core link of the intelligent plant planning scheme. The intelligent production line planning will help save plant space, reduce personnel movement, and improve production efficiency and quality through automatic detection.



## Contribution to SDG6 (Clean Water and Sanitation)



According to the *Sustainable Development Goals Report 2023: Special Edition*, more than a billion people around the world did not have access to safely managed water, sanitation and hygiene services despite great progress. Achieving universal coverage by 2030 will require a six-fold, five-fold and three-fold increase over current rates of progress in terms of drinking water, sanitation and hygiene services. But we are still not on track to reach SDG6 by 2030. To get back on track, key strategies include increasing sector-wide investment and capacity-building, promoting innovation and evidence-based action, enhancing cross-sectoral coordination and cooperation among all stakeholders, and adopting a more integrated and holistic approach to water management.

CECEP (Hubei) Fund, based in Wuhan, the largest city in the Yangtze River Basin, focuses on investment in the Yangtze River Economic Belt, with a focus on wastewater treatment equipment enterprises. Using innovative products and technologies, it protects water ecosystems, avoids wastewater from polluting soil and groundwater quality, and reduces the number of deaths and illnesses caused by water pollution, contributing to SDG6 clean water and sanitation.

<p><b>UN 2030 SDGs</b></p>	<p>6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.</p> <p>6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.</p>
<p><b>China's counter-measures</b></p>	<p>By 2030, ensure universal and equitable access to safely managed and affordable drinking water for all.</p> <p>Improve the water resource management system that combines river basin management and administrative area management, and enhance the role of comprehensive river management in water governance.</p>
<p><b>Investment projects and counter-measures of CECEP (Hubei) Fund</b></p>	<ul style="list-style-type: none"> <li>• Easy-Sight provided comprehensive intelligent drainage network operation &amp; maintenance solutions and diversified tests and repair equipment and materials, improving water quality in the area and reducing the number of deaths and illnesses caused by water pollution.</li> <li>• 3R adopted innovative continuous oxidation process to enable the disposal and comprehensive utilization of hazardous industrial wastes such as acids and surface treatment wastes, reducing the impact on water resources.</li> <li>• Yacheng New Energy applied zero discharge technology in wastewater treatment.</li> </ul>

### Outcomes in 2023

**Easy-Sight:**



Easy-Sight created an output value of

**¥146.00** million

in pipeline repair materials and services



Making

**5.00** million

people accessible to healthy and safely managed water.

**3R:**

3R recycled iron materials from spent pickling acid from steel rolling, and uses such materials to produce pollution treatment agents such as wastewater treatment agents. In this way, wastewater is used to treat itself. This process is of great strategic importance in promoting sustainable economic development, reducing environmental pressure, and managing urban pollution. It also contributes to the Great protection of the Yangtze River strategy.

**Yacheng New Energy:**



Yacheng New Energy applied

**zero** discharge technology in wastewater treatment, achieving zero discharge of wastewater.

It sold by-product ammonium sulfate as fertilizer to strengthen recycling.

**Easy-Sight implements a water environment system treatment project in the central area of Jiujiang**

The project phase I has a total investment of ¥7.70 billion, with a construction period of 2~3 years and an operation period of 17~18 years. It includes six subprojects, namely the comprehensive wastewater treatment in Fanglan (phase I), the comprehensive wastewater treatment in Baishui Lake (phase I), the comprehensive wastewater treatment at the Yangtze River outfall in the central area of Jiujiang, the comprehensive treatment in basins of Shili River and Lianxi River, the control hub of Bali Lake and Saicheng Lake, and the pollution control and ecological transformation around Saicheng Lake.

The project phase II is a supplement and expansion based on the project phase I. It has a total investment of ¥6.70 billion, with a cooperation period of 30 years and a construction period of 2~3 years for newly built subprojects. It includes six subprojects, namely the wastewater system quality and efficiency improvement in Laoguantang, the wastewater system quality and efficiency improvement in Hewen Lake, the wastewater system quality and efficiency improvement in dispersed areas of the central area, the urban sludge and kitchen waste treatment and disposal project, the urban emergency water source construction project, and the smart water system project.



**Easy-Sight conducts survey of municipal drainage pipelines, investigation of mixed connection rainwater and wastewater pipelines, and detection of drainage pipelines in Nanchang Xiaolan Economic and Technological Development Zone**

In order to improve the regional water environment soon, Nanchang Xiaolan Economic and Technological Development Zone carried out the open channel water treatment and drainage pipeline dredging, detection, repair and renovation project. This is also an emphasis of the central environmental inspection team in reviewing rectification results. In the project checked and repaired defects in 300.00 kilometers of drainage pipelines along municipal trunk roads, and established the drainage pipeline information management system for the development zone with the technological support of Easy-Sight.

The project mainly involved the area where Nanchang Xiaolan Economic and Technological Development Zone is located, with Yingbin Avenue on the east, Ganjiang Embankment on the west, Donglian Road on the north and Yingfu Avenue on the south. The drainage pipeline along the municipal trunk road is about 310.00km long. The development zone has a planned area of 40.00 square kilometers, with a built-up area of 22.00 square kilometers. The project investigated part of mixed pipelines involving the branch of the Ganjiang River, the branch of the Fuhe River, the open channel of the Lianhe River, the Xianghu Lake and the Qingshan Lake, renovated severe mixed nodes, and fixed part of detective pipelines without causing road excavation.



Before the implementation of the project, the influent COD, ammonia nitrogen, and total nitrogen concentration of Xiaolan WWTP were 172.86mg/L, 7.23mg/L, and 12.14mg/L, respectively. After the implementation of the project, the figures were 224.00mg/L, 13.50mg/L, and 18.30mg/L at local WWTPs, respectively. The declined influent concentration indicated an evident effect of the project.



**A main drainage pipeline damage repair project is implemented in the central area of Huizhou**

The project was carried out in the central area of Huicheng District (excluding Jinshan New Town), involving 1,192.00 kilometers of built-up main drainage pipelines within an area of about 226.00 square kilometers. The project implementation content included pipeline survey, QV detection, CCTV detection, pipeline dredging and pipeline repair. The project involved a total population of 4.42 million, and the main polluted water bodies were the Dongjiang River and its branch the Xizhi River. Related WWTPs were Huizhou Jiangbei WWTP, Tangquan WWTP and Shuikou WWTP.

This project solved waterlogging on nine municipal roads in Qiaodong, Jiangbei and Xiajiao, and renovated drainage systems along multiple roads with severe waterlogging in Shuikou to reduce the waterlogging risk. The existing municipal drainage pipelines in the central area of Huicheng District were dredged, detected and repaired to remove hidden dangers in urban drainage and flood control. Meanwhile, pipelines in the central area of Huicheng District were inspected to enhance urban drainage and flood control capabilities.



# Contribution to SDG9 (Industry, Innovation and Infrastructure)



According to the *Sustainable Development Goals Report 2023: Special Edition*, with the increase in global R&D expenditure, the proportion of global GDP invested in R&D has increased from 1.69% in 2015 to 1.93% in 2020. This was mainly driven by the increase in R&D investment and the decline in GDP, but still with significant regional differences. R&D expenditure in least developed countries was still too low.

CECEP (Hubei) Fund focused on R&D and innovation capabilities of enterprises, and made investments as required by the great protection of the Yangtze River strategy, contributing to SDG9 Industry, Innovation and Infrastructure.

**UN 2030 SDGs**

9.4 Upgrade infrastructure, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies.

**China's counter-measures**

China will accelerate upgrading and transforming conventional industries, and promote low-carbon energy use of industries to promote new energy sources actively. Besides, constraint mechanisms will be established based on specific indicators for process technology and energy consumption to eliminate backward production capacity.

**Investment projects and counter-measures of CECEP (Hubei) Fund**

- 3R adopted the innovative continuous oxidation process to enable the disposal and comprehensive utilization of hazardous industrial wastes such as acids and surface treatment wastes.
- Yingfa Ruineng adopted the advanced and efficient production equipment and test line, and purchased sufficient wafer raw materials.
- Yacheng New Energy adopted the advanced ammonia process and purchased the cost-effective raw materials such as cobalt, phosphate ore, ferrous sulfate, etc.

**UN 2030 SDGs**

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors, encouraging innovation and substantially increasing the number of R&D workers per 1 million people.

**China's counter-measures**

China will accelerate the implementation of the Outline of the National Strategy for Innovation-Driven Development, clarifying the direction and priorities of innovation-driven development, and creating a systematic capacity for sustainable innovation.

**Investment projects and counter-measures of CECEP (Hubei) Fund**

- Polycomp International boasts many platforms of innovation and introduction of foreign intelligence, including the “national enterprise technology center”, the “post-doctoral research station”, the “joint training base for graduates in the major of material and chemical engineering”, the engineering technology research center for glass fiber and composite materials in Chongqing, laboratories certified by China National Accreditation Service for Conformity Assessment (CNAS) and DNV, Chongqing’s key laboratory of industry and information technology for glass fiber R&D, and Haizhi workstation.
- Yueyang Xingchang set up four basic material R&D teams, focusing on the basic research of special phenols, modified polypropylene, energy-efficient and environmental business, and special polypropylene. It established partnerships with many universities and research institutes, and leveraged excellent professional technology and R&D resources to improve its capability to tackle problems in development and innovation capabilities for key technologies, consolidate its leading position in the industry, and industrializing its scientific research achievements step by step.
- Easy-Sight closely worked with many universities both at home and abroad to build a first-class research and development system integrating “enterprises, universities and research institutes”
- “Method For Purifying Ferric Chloride” is a patent for invention that 3R developed independently and owns the complete intellectual property right granted by the US Patent and Trademark Office (patent No. US 11,685,667 B2), demonstrating 3R’s technological innovation capability and international competitiveness.
- Yingfa Ruineng focused on the R&D of high-efficiency crystalline solar cells and built a high-standard laboratory to realize PERC and TOPCon technology innovation.
- Yacheng New Energy independently researched and developed the production technology of precursors for the cathodes of lithium batteries, and optimized the impurity separation technology, so as to maintain a stable design standard.

**Outcomes in 2023**


R&amp;D expenditure of Polycomp International

**229.40** million

R&amp;D expenditure of Yueyang Xingchang

**36.13** million

R&amp;D expenditure of Easy-Sight

**13.46** million

R&amp;D expenditure of 3R

**43.75** million

R&amp;D expenditure of Yingfa Ruineng

**285.10** million

R&amp;D expenditure of Yacheng New Energy

**44.59** million

(Note: The R&amp;D data of Polycomp International and Yueyang Xingchang is as of September 2023.)


**Yueyang Xingchang R&D Center**

Yueyang Xingchang R&D Center is an institution affiliated to the company’s new materials research institute, covering an area of 10,582.00 square meters. Currently, it has laboratories for energy efficiency and environmental protection, organic synthesis, polyolefin, modification experiment and special phenols, with more than 100 sets of various instruments and equipment. In 2022, it was certified as an “expert work station in Hunan Province” and served as the platform in support of the company’s three industrial directions. Persist in building a platform-based center, Yueyang Xingchang R&D Center adheres to the open and innovative work philosophy, and actively promotes cooperation with scientific research institutes, well-known universities and industry experts and technological transformation, building a well-established business chain integrating “enterprise, universities and research institutes”.


**Easy-Sight builds green collaborative innovation and achievement transformation platforms integrating “enterprise, universities and research institutes” based on policies**

At the beginning of its established, Easy-Sight found a dedicated R&D center. In 2015, the company’s R&D center participated in the co-construction of Shanghai Urban Drainage System Engineering Technology Research Center, and established the R&D and promotion base for precise detection equipment of drainage pipes and channels. In 2020, the company established the drainage environment governance equipment industry technology innovation center jointly with China University of Geosciences, Wuhan. In 2021 to 2023, it invested ¥3 million of technological innovation construction fund to promote relevant technological cooperation and R&D. In 2023, both parties jointly established Hubei Province Aquatic Ecological Institute of Yangtze River Co., Ltd. The major shareholder of the institute is Hubei Ecological and Environmental Protection Co., Ltd., who is a second level subsidiary of Changjiang Industry Investment, a contributor of CECEP (Hubei) Fund. By leveraging the intellectual property, professional, scientific research and alumni resources of China University of Geosciences, Wuhan, the investment and market resources of enterprise investors in the environmental protection industry, as well as the demands of the environmental protection industry and innovation policy resources in Hubei Province, the company created green collaborative innovation and achievement transformation platforms integrating “enterprise, universities and research institutes” based on policies.

In November 2023, Hubei Province Aquatic Ecological Institute of Yangtze River Co., Ltd. signed a cooperation agreement with Wuhan Jiangxia Economic Development Zone on the project of “key technology and application demonstration for in-situ detection of municipal wastewater pipeline leakage and water environment pollution”, so as to form a mature and efficient wastewater pipeline leakage detection technology, develop pipeline leakage and water environment pollution detection-related equipment, and then apply for relevant the national patent for invention. Meanwhile, it cultivated outstanding engineers in cooperation with China University of Geosciences, Wuhan.


**3R assists in China’s first megawatt iron-chromium flow battery electrolyte demonstration project**

With first-class process technology, production equipment and transportation services, 3R produced first-class iron-chromium flow battery electrolyte, which is China’s first megawatt iron-chromium flow battery electrolyte demonstration project. The project broke the global record for the maximum iron-chromium flow battery electrolyte storage, and stored electricity using chemical properties of iron and chromium ions in electrolyte.

3R assists in advanced impurity removal technology, high-efficiency and low-cost oxidation equipment, a complete preparation process route and cost control scheme. In particular, it has inherent advantages in preparing iron and chromium sources, with stable production bases and R&D teams. The successful trial operation of the iron-chromium flow battery electrolyte storage demonstration project indicated 3R’s presence in the field of new energy and contribution to the new energy battery industry.



## Contribution to other SDGs

Goals	Action Measures
	<p>Polycomp International introduced advanced waste gas treatment technology from Japan and China, and independently developed and designed the SNCR exhaust treatment and denitrification process with the patented technology in the industry.</p> <p>3R adopted the innovative continuous oxidation process to enable the disposal and comprehensive utilization of hazardous industrial wastes such as acids and surface treatment wastes, improved the efficiency and quality of waste acid treatment and strengthened the waste disposal capacity. In 2023, 3R treated 184,000.00 tons of acid wastes, and produced 202,000.00 tons of ferric chloride and its polymers, and ferrous chloride using Fe<sup>2+</sup> and Fe<sup>3+</sup> recycled from waste acids.</p> <p>Yacheng New Energy adopted the two-step process to broaden the source of raw materials and reduce the quality requirements for raw materials. It used the new energy-efficient technology to reduce natural gas and electricity consumption of products.</p>
	<p>Easy-Sight provided urban drainage network with innovative IT-based turnkey solutions and diversified tests and repair equipments and materials, strengthened the weaknesses in urban drainage system, improved the water quality in the city, solved poor detection effect, high costs, insecurity and other problems in previous water pipe inspection, ensuring drinking water safety for 5 million people, and reduced the number of deaths and illnesses caused by water pollution in 2023.</p>
	<p>Yueyang Xingchang developed the near zero emission technology of inert gas in storage tanks and the process development of vehicle loading oil and gas pretreatment +CO on the industrial isooctane equipment.</p> <p>Easy-Sight provided urban drainage network with innovative IT-based turnkey solutions and diversified test and repair equipment and materials, strengthened the weaknesses in urban drainage system, and reduced the number of deaths and illnesses caused by water pollution.</p> <p>3R reduced the adverse per capita environmental impact of cities by improving waste disposal capacity</p>
	<p>Easy-Sight provided urban drainage network with innovative IT-based turnkey solutions and diversified test and repair equipment and materials, strengthened the weaknesses in urban drainage system, improved the water quality in the city, prevented wastewater from polluting soil and groundwater, and protected water ecosystems, creating a good living space for underwater creatures.</p> <p>Yingfa Ruineng launched the fishpond solar farm project, which combined fish farming with photovoltaic power generation, creating a new resource utilization model that generates clean energy, and supports the development of local fishery and aquaculture industries.</p>

Goals	Action Measures
	<p>Since its establishment in 2003, 3R has always paid attention to the cause of national education. Over the years, it has donated a total of more than 2.00 million to the society. In particular, it provided financial support for Yonghu Town's scholarship and student grant activities for more than 10 consecutive years; it donated tens of thousands of yuan to Yishi Primary School in Yonghu Town for purchasing teaching equipment and maintaining the campus.</p>
	<p>3R recycled etching solution online in the etching process, with the aim to provide supporting services for PCB enterprises, create a good production and operation environment, and dispose waste liquid generated during the etching process.</p>
	<p>3R built a production system to recycle the ferric ions from waste acid resources and produce flocculants and other resource products, avoiding 607.20 tons of CO<sub>2</sub> emissions.</p> <p>Yingfa Ruineng developed solar power generation units and participated in LSPV power station projects, saving about 9.77 million tons of standard coal every year, and reducing 26.76 million tons of CO<sub>2</sub> emissions every year.</p> <p>Yacheng New Energy replaced old process with ammonia process to produce precursors for the cathodes of lithium batteries, reducing 357.83 tons of coal combustion and carbon dioxide emissions and 980.56 tons of CO<sub>2</sub> emissions every year. It signed contracts with electricity sales companies to apply green electricity in production and reduce carbon emissions. Besides, it laid solar panels on workshop buildings in the plant area, and supplemented electricity by solar power generation.</p>
	<p>Since its establishment in 2003, 3R has taken an active part in rural revitalization activities and devoted itself to public welfare and charity. In July 2023, 3R won the positive contribution award for rural revitalization in Huizhou in 2021-2022.</p> <p>Yacheng New Energy provided targeted poverty alleviation to Xiangzikou Town of Ningxiang, a rural revitalization demonstration town Hunan Province, which was recognized by the local government and cooperatives.</p>
	<p>The environmental impact assessment was conducted for all projects, focusing on varying degrees of impacts on surrounding environmental factors, such as atmosphere, sound, surface water, groundwater and soil during the project construction and operation, ensuring compliance with the requirements of environmental quality objectives.</p>

# Introduction to Investment Projects

## Project 1 Chongqing Polycomp International Corporation

Polycomp International was established in 1991 as an important pillar enterprise of new fiber glass materials under Yuntianhua Group in the industry. The company is a high-tech enterprise with R&D, production, and sales of glass fiber and composite materials as its core business. It is committed in developing high-performance new materials with a stable quality and continuous innovation, and providing customers with valuable services and application solutions.

Polycomp International has three sales subsidiaries in North America, Europe and Hong Kong. It has production bases in Chongqing, Zhuhai, Changzhou, as well as Brazil, Bahrain, the US, and Morocco, with the annual production capacity of more than 1.00 million tons of fiber glass yarn and 200.00 million meters of fiber glass cloth. The company's glass fiber product varieties mainly include alkali-free glass fiber untwisted roving, fine yarn, chopped fibers, woven roving, fabrics. The product quality has been widely recognized by its partners.

The company has multiple invention and utility patents, including ECT, TM, TM+. Its main products were certified by Germanischer Lloyd (GL), Lloyd's Register of Shipping (LR) and FDA, and sold in many countries and regions, such as Asia, Europe, the Americas and the Middle East. The Company established stable partnerships with internationally renowned enterprises such as GE, DuPont, and LM. The company's products have been widely used in wind turbine blades, vehicles and rail transit, building materials, industrial pipes and tanks, power insulators, electronic appliances, aerospace and other fields. Since its establishment, the company has won many honors, including the recognition award of the China Grand Awards for Industry, the National Intellectual Property Advantage Enterprise, the China Patent Excellence Award, a Chinese famous brand, a national key new product, an excellent innovative enterprise in Chongqing, and the first prize for science and technology progress in Chongqing.



## Project 2 Yueyang Xingchang Petro-Chemical Co., Ltd.

Yueyang Xingchang was established in 1990 and listed on the Shenzhen Stock Exchange in 1997. As an innovation-driven petrochemical enterprise, it has been engaged in the fields of new chemical materials, clean energy, and energy efficiency and environmental protection and committed to becoming a product and service provider in the upgrading process of the petrochemical industry. It has formed the industrial pattern of coordinated development of two production bases, three business sectors and eight subsidiaries. CECEP (Hubei) Fund signed a cooperation agreement with Yueyang Xingchang in December 2023.

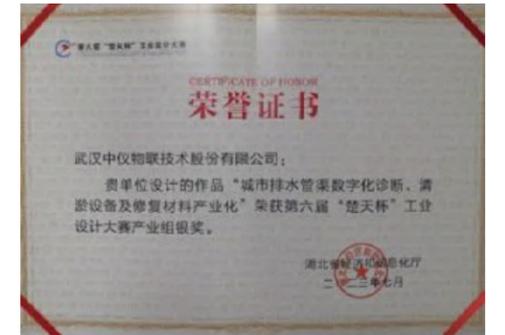
Yueyang Xingchang is a comprehensive petrochemical enterprise that integrates R&D, production and sales. Its main business sectors are energy and chemical engineering, new chemical materials, and retail of finished oil. Its main products include propylene, liquefied petroleum gas, MTBE, industrial isooctane, conventional polypropylene, special polypropylene, and ortho cresol. Its products are applied in medical, food, textile, industrial material manufacturing, modified materials, civilian fuel and other fields. In the field of energy and chemical engineering, the company is a leading producer of oil blending components in central and southern China. In the field of new chemical materials, the company masters core technologies of special polypropylene and special phenols, which is a key development direction for the future.



## Project 3 Wuhan Easy-Sight Technology Co., Ltd.

Easy-Sight which is headquartered in Wuhan, Hubei Province, was founded in 2010. The company has focused on providing comprehensive drainage network detection, operation & maintenance solutions for cities, and developed into a high-tech enterprise with R&D and manufacturing of drainage network detection, evaluation, maintenance, rehabilitation-related technologies, equipment and materials as core businesses. CECEP (Hubei) Fund signed a cooperation agreement with Easy-Sight in August 2021.

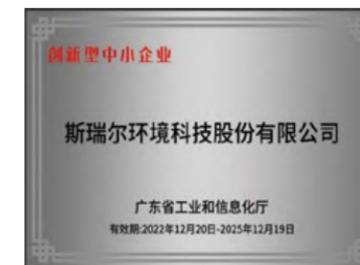
Easy-Sight developed a series of drainage network detection, maintenance and repair products and information platforms, which were widely used in various infrastructure fields such as physical exploration, urban construction, municipal administration, national defense and water conservancy and hydropower. In the era of 5G data, Easy-Sight independently completed research of the network information technology and made continuous breakthroughs, which is another core competitiveness. With the help of GIS, it integrated basic spatial information of drainage network effectively by cloud computing, Internet of Things and other technologies, which formed a set of characteristic and replicable geographic information system of the urban drainage network, make drainage network services more innovative, and upgraded the drainage network operation and maintenance industry.



## Project 4 3R Environmental Technology Co., Ltd.

3R was established in Huiyang District, Huizhou, Guangdong Province, in April 2003. 3R is a high-tech company that recycles hazardous industrial wastes to produce specialty chemicals, such as water treatment agents, etching agents, pharmaceutical raw materials, new energy materials, energy storage flow battery materials, and integrates R&D, production and sales. By leveraging its technological advantages in production and application of iron salt products, it has actively transformed towards green and energy-efficient industries. As of the end of 2023, 3R established four major production bases in Huizhou, Jieyang, Tangshan and Jingmen, and more than 10 subsidiaries in Guangdong, Hebei, Liaoning and Hubei, with more than 600 employees. The company ranked among the best in terms of total waste acid disposal and sales of ferric chloride. It sold its products to various provinces and cities across the country, and exported to Hong Kong, Southeast Asia, the Middle East, Europe, the Americas, Australia. CECEP (Hubei) Fund signed a cooperation agreement with 3R in October 2021.

3R mainly disposed and utilized industrial hazardous waste, such as waste acid (HW34) and surface treatment waste (HW17) by means of chemical conversion and physical separation. It recycled hazardous industrial wastes to extract useful substances and turn them into specialty chemicals, such as ferric trichloride and its polymer, ferrous chloride, and ferric sulfate and its polymer. Its products were widely used in wastewater treatment, sludge dewatering, metal and PCB etching, pharmaceutical and other fields. Its new energy material products include ferric hydroxide oxide, iron phosphate and iron-chromium electrolyte.



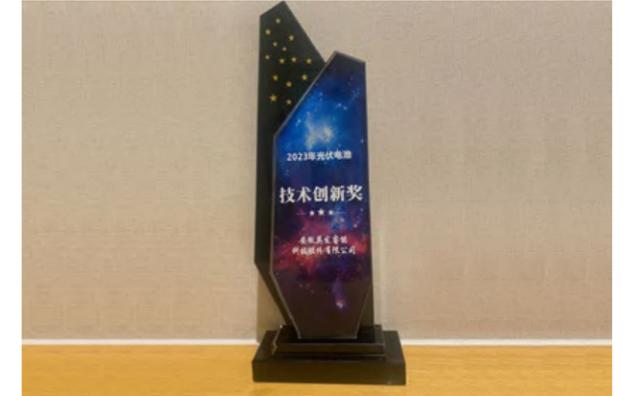
## Project 5 | Anhui Yingfa Ruineng Technology Co., Ltd.

Founded in June 2016, Yingfa Ruineng focuses on the design, R&D, manufacturing, sales, installation and service of solar cells, with the ambition of becoming an industry leader. CECEP (Hubei) Fund signed a cooperation agreement with Yingfa Ruineng in August 2022.

Yingfa Ruineng mainly produces monocrystalline cells based on PERC and TOPCon technology. Yingfa Ruineng mainly produces monocrystalline cells based on PERC technology. The manufacturing of solar cells, known as "photovoltaic chips", adopts a semiconductor-like process. Through diffusion, coating and metallization, silicon wafers are processed into solar cells that directly convert light energy into electricity. Solar cell manufacturing constitutes a key part of the photovoltaic industry.



Annual Influential PV Cell Technology Innovation Award for Outstanding Employers in PV Intelligent Manufacturing 2023



PV Cell Technology Innovation Award



PVBL Fastest Growing PV Brand Award 2023



PVBL Top 100 Solar PV Brands in the World



No.12 of Global Top 20 PV Cell Corporations 2023

## Project 6 | Yacheng New Energy Co., Ltd.

Founded in 2007, Yacheng New Energy is a subsidiary of Beijing Hezong Science & Technology Co., Ltd. The company focuses on the R&D, production and sales of precursors — mainly tricobalt tetroxide, cobalt hydroxide, and iron phosphate — for the cathodes of lithium batteries. It is a national high-tech enterprise integrating "enterprise, universities and research institutes". CECEP (Hubei) Fund signed a cooperation agreement with Yacheng New Energy in December 2022.

Yacheng New Energy mainly focuses on the production and R&D of battery materials. It has developed a technological system for the production of several types of precursors, including a full range of precursors for lithium cobalt oxide batteries, a full range of precursors for lithium iron phosphate batteries, a full range of ternary precursors, and precursors for lithium manganese iron phosphate batteries. Internally, relying on its own R&D center, it has developed a product R&D system and a range of core technologies with independent intellectual property rights. Externally, it cooperates with Central South University and Changsha Research Institute of Mining and Metallurgy in personnel training and incorporates their technical consulting and guidance into independent R&D, which lays a solid foundation for the R&D of new technologies and products. In 2023, the company's iron phosphate rodution workshop was awarded the intelligent manufacturing benchmark workshop in Hunan Province; the company's iron phosphate product was rated as the single champion product in Hunan Province; the company was awarded the water efficiency demonstration enterprise in Changsha and rated as the disabled employment support base in Ningxiang.



Annual Influential PV Cell Brands 2023



Annual Influential Excellent PV Innovative Enterprises 2023



## Introduction to Partners



CECEP Capital is a wholly-owned subsidiary of China Energy Conservation and Environmental Protection Group Co., Ltd.. With strong support from the leading group office for promoting the development of the Yangtze River Economic Belt, CECEP was defined as the main platform enterprise for pollution control of the Yangtze River Economic Belt. CECEP (Hubei) Fund is an important path and entity for CECEP Capital to implement the responsibility of a main platform for pollution control in the Yangtze River Economic Belt and solve the financing difficulties of environmental governance projects.

Daiwa Corporate Investment and Hubei High-tech Investment (now Changjiang Industry Investment) jointly established the first Sino foreign joint venture private equity investment fund in central and western China in Wuhan, with over 13 years of investment experience. CECEP (Hubei) Fund is the first green environmental protection industry fund invested by Daiwa Corporate Investment to implement its SDG-based investment concept in China.



Wings Investment is a market-oriented professional equity investment management platform company jointly established by Hubei High-tech Investment and SDIC Gaoxin. Its parent company, Changjiang River Industrial Investment Group Co., Ltd., is the largest industrial investment group in Hubei Province and the main investment and financing platform for promoting technological innovation and developing strategic emerging industries.

NGDF is a national level green environmental protection fund of funds jointly sponsored and established by the Ministry of Finance of the People's Republic of China, the Ministry of Ecology and Environment of the People's Republic of China, and Shanghai Municipal People's Government, with an initial scale of ¥88.50 billion. The fund focuses on investing in fields of pollution control, ecological restoration and land space greening, energy and resource efficiency and utilization, green transportation, and clean energy.



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