CITICPE

SUS ENVIRONMENT

Create a cleaner and friendlier environment

中信产业基金 CITICPE

康恒环境 SUS ENVIRONMENT

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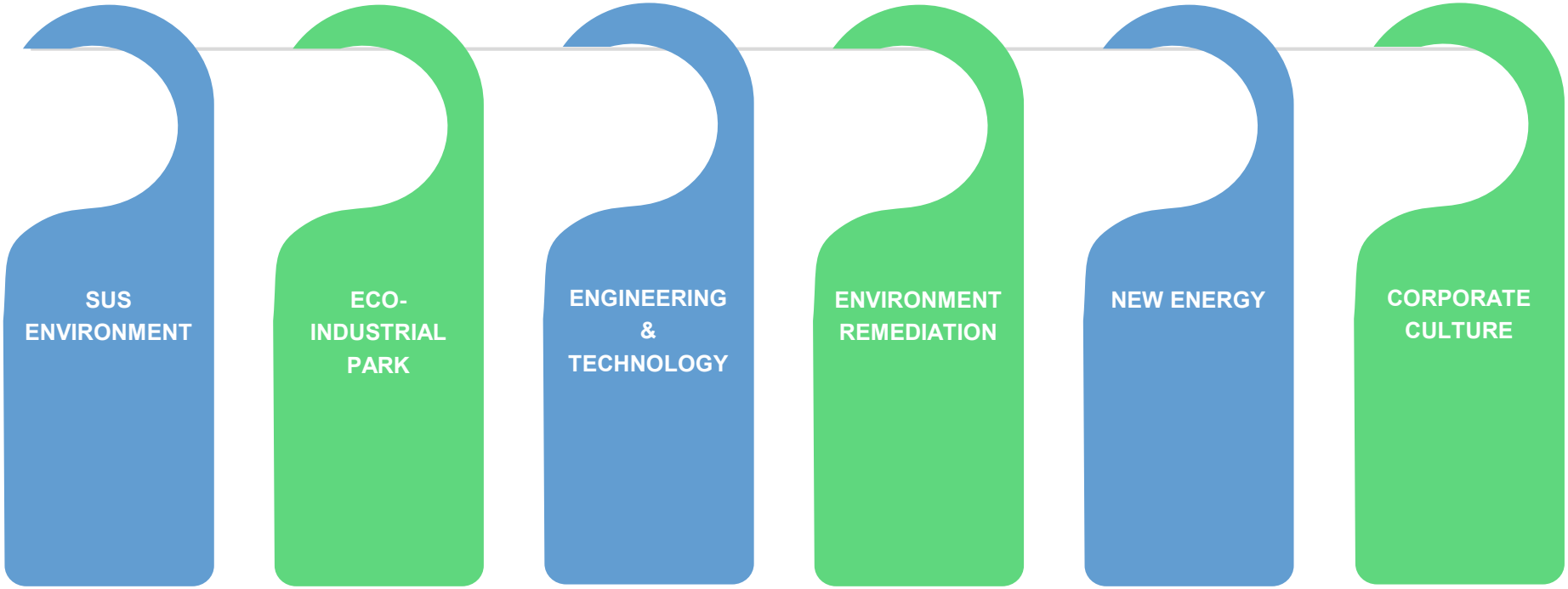
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CITIC GROUP - CITICPE

Leverage proprietary research and industry insights to enable companies deliver lasting growth and leadership

100 Billion assets under management

100+ portfolio companies

中国中信集团公司 CITIC Group

CITICPE 中信产业基金

30+ IPOs

40+ domestic and overseas listed companies

CITIC Private Equity Funds Management Co., Ltd. is a professional strategic platform for CITIC Group and CITIC Securities to engage in private equity investment business.

Huge registered capital and equity capital make CITICPE the most powerful fund management company in China.

SUS ENVIRONMENT

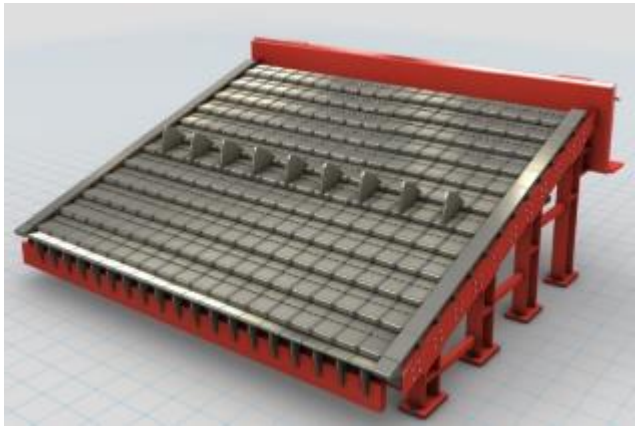
SUS Environment is an integrated solid waste management company subsidiary to CITICPE.

Leveraging advanced technologies and outstanding talents, SUS is a leading player in China's environmental protection industry with the provision of one-stop integrated environmental solution, including municipal solid waste and biomass incineration and energy recovery, ecological remediation of contaminated site and EPC services to waste incineration projects, etc. It has track records in investment, construction and operation of individual waste-to-energy facilities and Eco-Industrial Parks in which MSW and non-MSW are treated together in a closed loop to minimize the waste and maximize energy utilization.

Qualifications & Awards

Qualifications:	Professional Contractor for Environmental Protection Project
	Engineering Design of Environmental Protection Project
	Engineering Design of New Energy Project
	Engineering Design of Environmental Remediation Project
Certifications:	ISO9001, ISO14001 and OHSAS18001
Awards:	Second Prize of National Sci. & Tech. Progress Award
	First Prize of Sci. & Tech. Progress Award of the Ministry of Education
Honors:	Shanghai Technology Center
	Shanghai Hi-Tech Enterprise
	“Keep Contacts and Regard Credits” Enterprise

SUS ENVIRONMENT



Eco-Industrial Park Investment

WTE EPC & Equipment

Biomass Power Plant Investment

Environment Remediation Investment & Construction

康恒环境

SUS ENVIRONMENT

2011 Rudong and Haikou WtE plants put into operation.
Shanghai Municipality High-Tech Enterprise awarded.
2012 **Soil remediation business** started.
Innovative Enterprise awarded.
2013 **Top 1** sales of waste incineration grate.
Reformed to **Joint-Stock Company**.

2017 **Ningbo** WtE plant put into operation.
WtE projects in **Nanchang, Huangdao, Sanhe,** etc acquired.
2018 **Xi'an Gaoling** and **Hangzhou Dajiangdong** WtE project,
Kaiyuan and **Gongzhuling** Biomass projects awarded.

2008 **Company founded.**
2009 Licensing Agreement signed with **Hitachi Zosen**.
Incineration grate supplied to Xiamen, Rudong and Haikou WtE projects.
2010 Invention Patents obtained.
ISO9001 and ISO14000 certificated.

2014 **Share held by CITICPE.**
Concession Agreements of **Zhuhai and Ningbo** WtE Projects signed.
2015 Shanghai Patent Pilot Enterprise awarded.
Hongda Environmental Protection Equipment Co., Ltd. acquired.
2016 Concession Agreements of **Shenyang, Taiyuan, Qingdao** projects signed.
PPP Demonstration Projects selected by the Ministry of Finance.
Over **40%** share of national incineration grate supply market (incl. Hitz).
Zhuhai WtE plant put into operation.
New Energy Department established and Xifeng & Guangshan biomass projects acquired.

Excellent Team

400+ Technical Professionals

20 years Experiences of core team in waste to energy sector

200+ Invention & Utility Model Patents

National Standards

Participated in laying down standards for WtE, landfill, transfer station, etc.

Pollution control standards for domestic waste incineration

Evaluation standard for WtE plants

Technical specification for domestic waste incineration treatment engineering

Technical specification for kitchen waste disposal

Technical specifications for operation and maintenance of domestic waste transfer station

Technical guidelines for domestic waste incineration

INTERNATIONAL COOPERATION

- Chinese President Xi Jinping and French President Emmanuel Macron jointly witnessed the signing of a memorandum of understanding on the establishment of an overseas development and investment platform, which will focus on the development and investment of WTE and other new energy projects, among SUS together with China Investment Group, the French national investment Bank Bpifrance, Quadran.

- SUS signed a $100 million loan with the Asian Development Bank (ADB) to finance for innovative and socially inclusive waste to energy facilities of China low-carbon vein industrial park (EIP).

INTERNATIONAL COOPERATION

- SUS joined APEC energy partners network (APSEC), which helps spread the environmental protection concept of WTE and prompt the cooperation with the international platforms.

- SUS works closely with United Nations Environment Programme(UNEP) International Environmental Technology Centre, the Earth Engineering Center of Columbia University (ECC) and Global WTERT Council (GWC).

- Being ISWA (International Solid Waste Association) platinum member, as the voice of China industry, SUS actively promotes the successful experience of China, assists and organizes *WTE Technology International Training Course*.

- As a leading company in the field of solid waste management in China, SUS Environment was invited to attend The 6th Waste Management, Waste to Energy Asian summit 2019 & 6th Biogas Biomass Energy SEA Summit 2019 Indonesia summit.

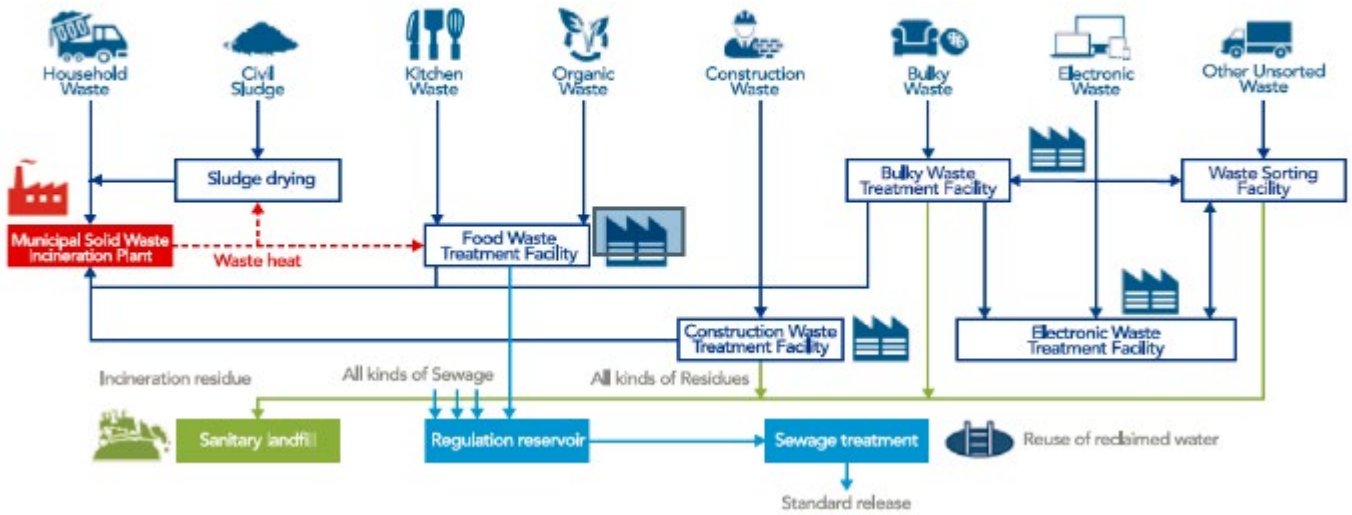

ECO-INDUSTRIAL PARK

ECO-INDUSTRIAL PARK

Integrated Solid Waste Management Solution

SUS contributes to investment, operation and maintenance of Eco-Industrial Park based on the principle of Waste-to-Energy along with integrated treatment facilities of sludge, medical, kitchen, food, C&D and electronic waste, etc.

Material and Energy Flow Cycle of Eco-Industrial Park



The recovered heat from WtE plant can provide required energy for sludge drying, kitchen waste fermentation and medical waste steaming, etc. The combustible particles of the residue can be re-injected into the incinerator. In this manner, the circulation of material can be realized.

ECO-INDUSTRIAL PARK – Invested WTE Projects

As of April 2019

- Waste to Energy
  Plants 30+
  Capacity 50,000+ t/d
- Sludge Treatment
  900+ t/d
- Food Waste
  600+ t/d
- Industrial Waste
  100+ t/d
- Medical Waste
  45+ t/d

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ECO-INDUSTRIAL PARK – Invested WTE Projects

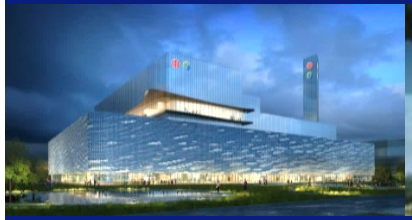
Zhuhai 1200 + 1800tpd

Ningbo 2250tpd

Taiyuan 3000tpd

Qingdao 2250tpd

Huangdao 3750tpd



Shenyang 1500tpd

Nanchang 2400tpd

Sanhe 3000tpd

Xian 22500tpd

Hangzhou 5200tpd

Others: Jilin Yushu, Hubei Guangshui, Guizhou Sansui, Taizhou Huangyan, etc.

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ECO-INDUSTRIAL PARK – Financial Resources

Corporate Financing

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ADB ASIAN DEVELOPMENT BANK

Project Financing

国家开发银行 CHINA DEVELOPMENT BANK

ICBC 中国工商银行

中国银行 BANK OF CHINA

中国建设银行 China Construction Bank

CITICPE - National PPP Demonstration Projects

CITICPE - SUS ENVIRONMENT

NINGBO ECO-INDUSTRIAL PARK WTE PLANT
2nd Batch of MoF PPP
Demonstration Projects

GUANGSHAN WTE PLANT
2nd Batch of MoF PPP
Demonstration Projects

QINGDAO XIAOJIANXI WTE PLANT (PHASE II)
3rd Batch of MoF PPP
Demonstration Projects

XIAN GAOLING WTE PLANT
3rd Batch of MoF PPP
Demonstration Projects

WUZHOU ECO-INDUSTRIAL PARK WTE PLANT
2nd Batch of NDRC PPP
Demonstration Projects

CITICPE - CHINA WATER ENVIRONMENT

WATER ENVIRONMENT OF NANMING RIVER IN GUIYANG
1st Batch of MoF PPP
2nd Batch of NDRC PPP

CLEAN WATER PROJECT IN GUANG'AN
2nd Batch of MoF PPP
2nd Batch of NDRC PPP

SHANGHAI JIADING SUNKEN REGENERATED WATER PLANT
1st Batch of MoF PPP

DALI ERHAI WATER GOVERNANCE
2nd Batch of MoF PPP

MANAGEMENT OF THE NORTH CANAL IN THE BEIJING, TIANJIN AND HEBEI
2nd Batch of MoF PPP

CHENGDU TIANFU NEW AREA WATER TREATMENT & SCIENCE CITY
2nd Batch of MoF PPP

ECO-INDUSTRIAL PARK – Ningbo WTE Plant

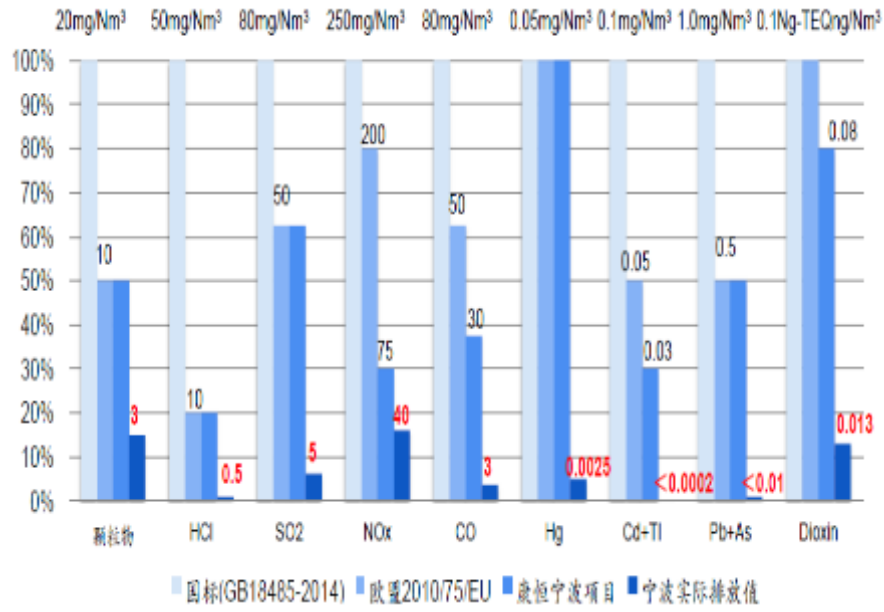
2nd Batch of PPP Demonstration Projects Awarded by the Ministry of Finance
Zhe Jiang Industrial Tourism Demonstration Base

The Luban Prize for Construction Project

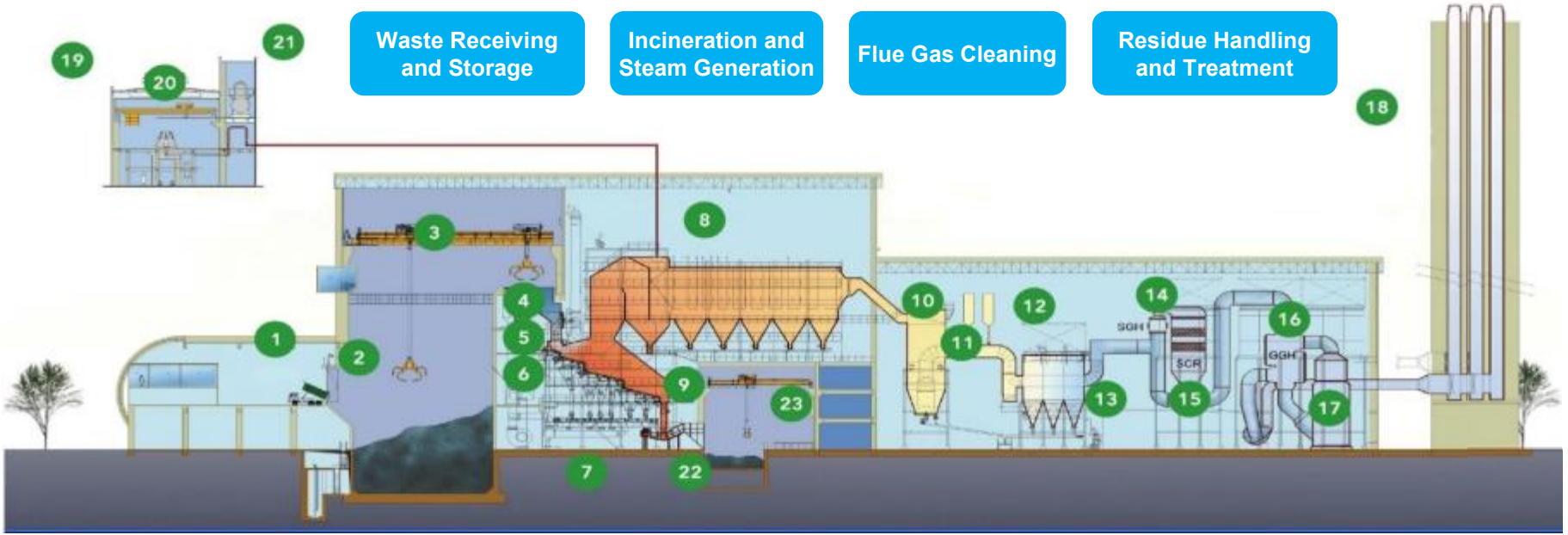
- Scale: 2,250t/d (3×750 t/d)
- Annual treatment capacity: 821,250 tons
- Flue gas cleaning system: SNCR + Semi-dry Process + Dry Scrubbing + Activated Carbon Injection + Fabric Filter + SGH + SCR + Wet Scrubbing + GGH
- Lowest air pollutant emissions among China's WtE plants, under the limit values set out in 2010/75/EU Industrial Emissions Directive
- First National History Museum of Municipal Solid Waste

ECO-INDUSTRIAL PARK – Ningbo WTE Plant

Lowest air pollutant emissions amongst China's WTE Plants below limit values set out in 2010/75/EU Industrial Emissions Directive



ECO-INDUSTRIAL PARK – Ningbo WTE Plant



1. Tipping Hall
2. Tipping Gate
3. Garbage Crane
4. Hopper
5. Feeder
6. SNCR
7. Primary Air Blower
8. Boiler
9. SUS Incineration Grate
10. Semi-dry Scrubber
11. Activated Carbon Injector
12. $Ca(OH)_2$ Injector
13. Fabric Filter
14. SGH (Steam-Gas Heater)
15. SCR
16. GGH (Gas-Gas Heater)
16. Wet Scrubber
17. Stack (110m)
18. Overhaul Crane
19. Turbine & Generator
20. Deaerator
21. Slag Extractor

ECO-INDUSTRIAL PARK – Zhuhai WTE Plant

- Phase I Scale: 1,200t/d
- Phase II Scale: 1,800t/d
- Flue Gas Cleaning: SNCR + Semi-dry + Dry Scrubbing + Activated Carbon Injection + Fabric Filter
- Air pollutant emissions lower than limit values set out in 2010/75/EU
- Adopting advanced technology and equipment, implementing firm management and strict supervision, and building a good relationship with the nearby residents by providing free recreational facilities.

ECO-INDUSTRIAL PARK – Zhuhai WTE Plant

Reception Hall

Central Control Room

Visitors Passage

Crane Control Room

Tipping Hall

Flue Gas Cleaning System

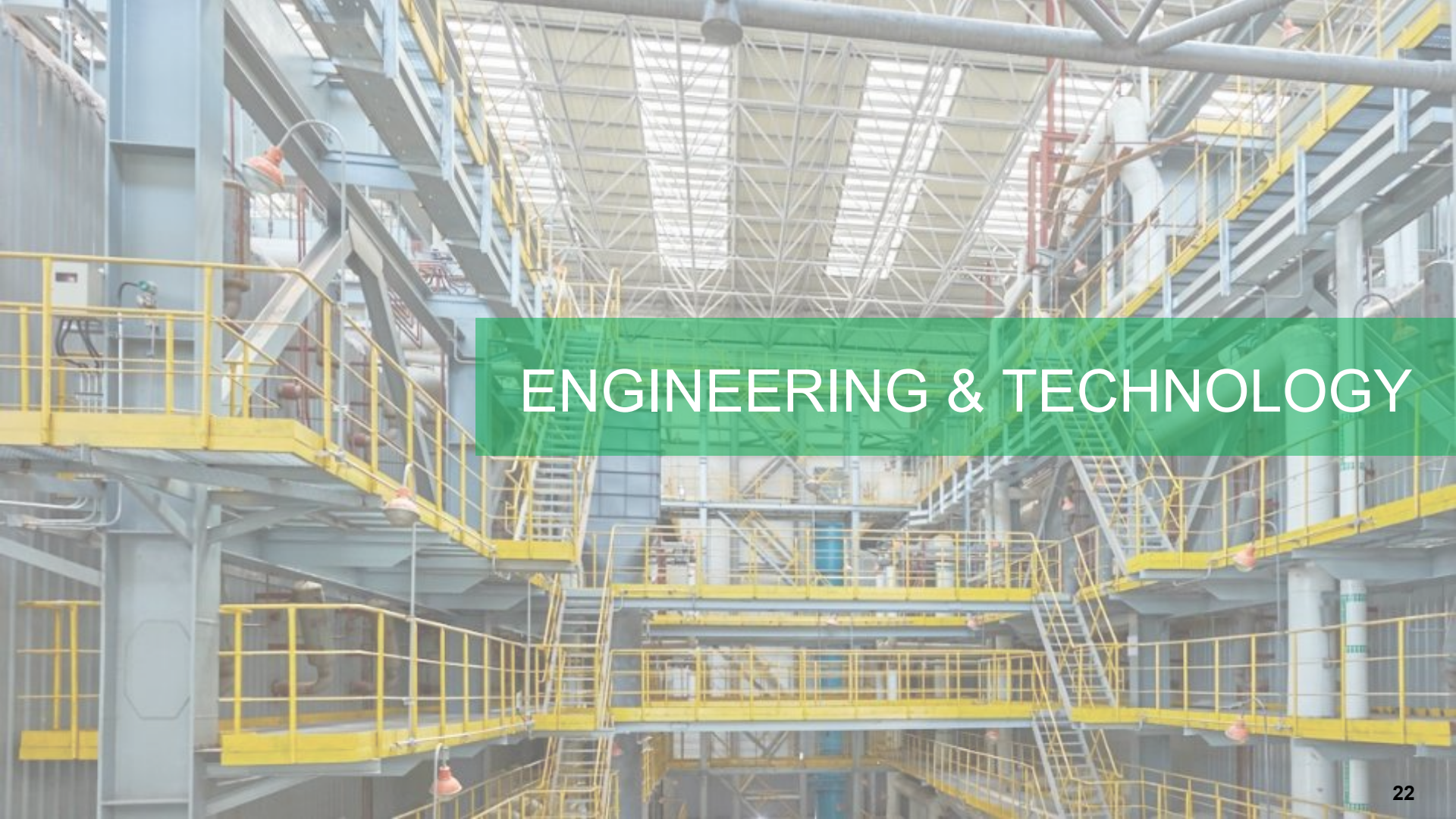
Turbine & Generator Room

Basketball Playground

ZHUHAI CITIC ECO-INDUSTRIAL PARK OVERVIEW

ECO-INDUSTRIAL PARK – Hangzhou WTE Plant

- Scale: 5200t/d (6×870t/d)
- Annual treatment capacity: 1,733,300 tons
- Flue gas cleaning system: SNCR + Semi-dry Process + Dry Scrubbing + Fabric Filter + SCR + GGH + Wet Scrubbing
- Air pollutant emissions lower than limit values set out in 2010/75/EU
- Expected commission date: December 30, 2020



ENGINEERING & TECHNOLOGY

ENGINEERING & TECHNOLOGY – Business Scope

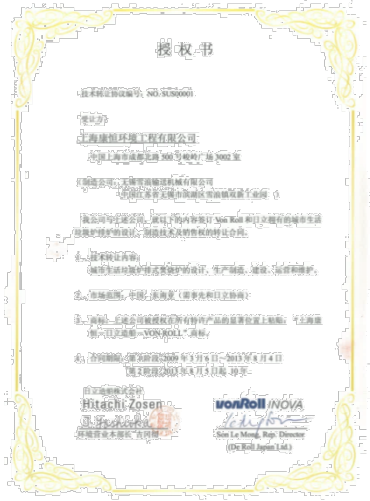
Engineering & Technology

- **Equipment Supply**
  - Mechanical Incineration Grate
  - Flue Gas Cleaning Complete Set Of Equipment
  - Fly Ash Stabilization Equipment
  - Sludge Drying and Incineration Equipment
  - Dredging Sludge Cleaning Equipment
  - Technical Consulting & Service
- **EPC**
  - Engineering Supervision
  - Equipment Supply, Installation and Guidance for Test and Adjustment
  - Engineering Design

ENGINEERING & TECHNOLOGY – Advanced Technology

Imported Technology

Hitachi Zosen



National Scientific and Technological Progress

Second Prize

The 19th National Congress Large Achievement Exhibition

Five Years of Sheer Endeavor

Invention & Utility Model Patents

200+

ENGINEERING & TECHNOLOGY – Technical Features

Complete Combustion

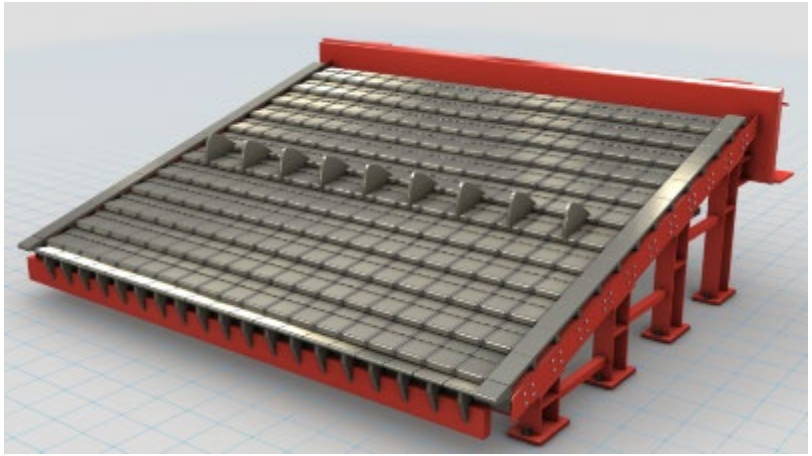
- Three-stage grate, including drying, burning and burnout.
- 1.3m wall drop between two stages.
- Unique sheer cutter.
- 1.5-2hrs retention time.

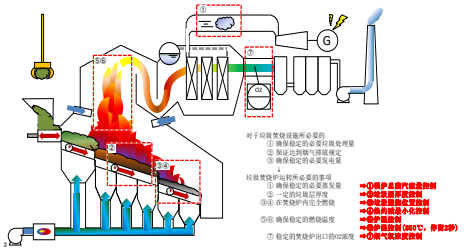
Good Performance

- Capable of adjusting speed, angle, frequency and air distribution of the grate at different stages individually.
- 100% ACC system operational rate.
- Below 2.0% of loss on ignition, and low leakage of bottom ash.

Cost-Effective Result

- Excellent overloaded operating capability.
- Less time needed thanks to modular installation.
- Long service life, low components replacement and minimum maintenance cost.





201210495704.1

Automatic Combustion Control System for Municipal Solid Waste Incinerator

ENGINEERING & TECHNOLOGY – Equipment Bases

Technology & General Assembly Base

- **NDRC Demonstration Base;**
- Located in Shanghai Qingpu Industrial Zone;
- Leading the further improvement of domestic incineration system technology.

Manufacture Base

- Located in Zhangjiagang and Wuxi of Jiangsu Province;
- Able of assembling 50 sets of 500t/d grate over a year;
- Delivered over 200 incineration lines.

ENGINEERING & TECHNOLOGY – Achievements (in China)

As of Aril 2019

- **Domestic Equipment Supply**

  WTE Plants: **145**
  Incineration lines: **304**

- **Total Waste Processing Capacity**

  Over **170,000** t/d

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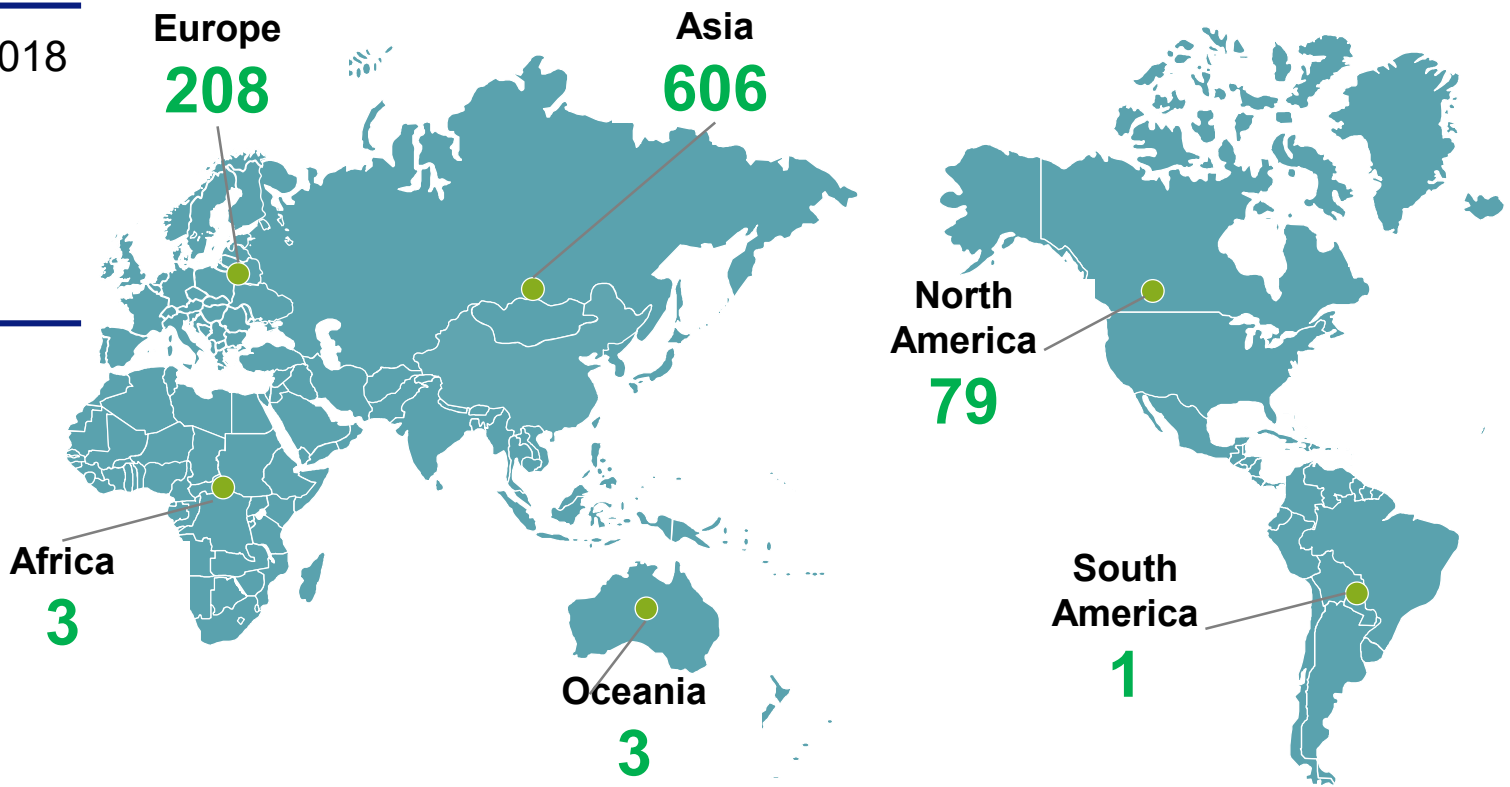
ENGINEERING & TECHNOLOGY – Achievements (Global Market)

As of December 2018

Plants 900

NO.1



SUS / HITACHI ZOSEN – Global Achievements

Riverside, UK

Renergia of Lucerne, Switzerland

Issy of Paris, France

Bangkok, Thailand

Tokyo Chuo, Japan

Maishima of Osaka, Japan

Rinkai of Fukuoka, Japan

Taibei Beitou, Taiwan

Shanghai Laogang

Hainan Haikou

Shanghai Liming

Taiwan Xizhou

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康恒环境 SUS ENVIRONMENT

ENVIRONMENT REMEDIATION

ENVIRONMENT REMEDIATION – Business Scope

Business Scope

Contaminated Site

Farmland

Old Landfill

Core Technology

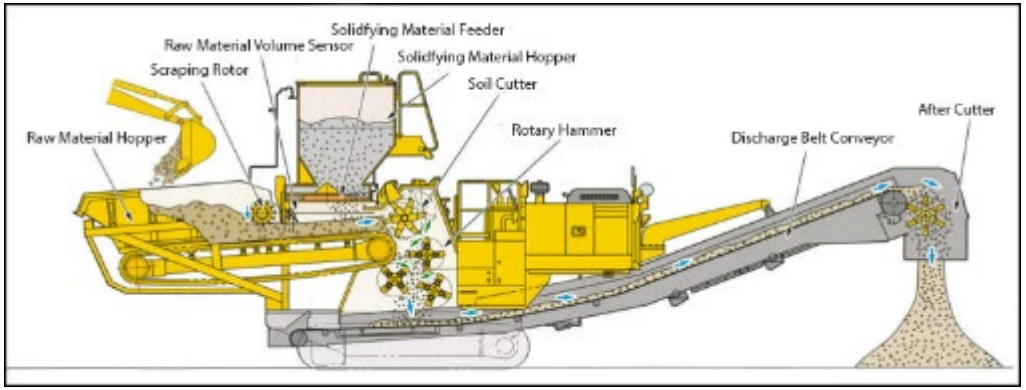
Independently developing remediation technologies based on the introduced ones from Japan and the United States and owning many core remediation technologies which have been widely applied to different kinds of heavy metals and organic contaminated sites, SUS Environment is honored for the National Key Practical Technology of Environmental Protection" and "Top 100 Environmental Protection Technologies".

- Chemical heat desorption
- Elution / Elutriation
- Ex-situ and in-situ thermal desorption
- Ex-situ and in-situ chemical oxidization
- Ex-situ and in-situ chemical reduction technology
- Ex-situ and in-situ biological oxidization
- Multiple extraction technology
- Groundwater extraction treatment
- Groundwater circulating well

ENVIRONMENT REMEDIATION – Core Technology

KH200 Soil Remediation Integrated Machine

SUS Environment's KH200 Soil Remediation Integrated Machine is capable of soil shredding, agent mixing and effective stirring, and can be applied to all types of soil. It is also applicable for the solidification and stabilization of heavy metal in contaminated soil, oxidation-reduction of organic pollutants, desorption of volatile pollutants at ambient temperature, etc.



- Applicable medium: all kinds of soil with different water content
- Handling capacity: 40-150 m^3 / hour
- Quantitative addition: 0.5%~15%

- Volume & weight: 13 meters long, 2.5 meters wide, 4 meters high and 30 tons
- Adapt to a variety of complex terrain with a diesel engine and a walking track
- Completely sealed to effectively reduce the dust and avoid secondary pollution

ENVIRONMENT REMEDIATION - Achievements

30+
Soil and Groundwater Remediation Projects

2000,000 m^3
Contaminated Soil Already Treated

5 sets
Independently Developed Remediation Equipment

Projects	Major Pollutants	Scale	Remediation Method	Completion Date
Organic-Polluted Site Remediation Project at Nanjing Chemical Plant (Southern Area)	Benzene, Chlorobenzene and other VOCs	86,000 m^3	Chemical Heat Desorption, In-Situ Chemical Injection and Oxidation	March 2015
Shanghai Taopu Wisdom City 604 Plots Remediation Project	Benzopyrene, total petroleum hydrocarbon and fluoride	1,364 m^3	In-Situ Chemical Injection and Oxidation	December 2016
Steel Slag Dumping Site Restoration Project for Bao Steel Group	Heavy metals and PAHs	33,000 m^3	Chemical Oxidation Curing Stabilization	December 2016
National Pilot Project - Jiyuan Heavy Metal Contaminated Farmland Remediation Project	Heavy metals (e.g. lead, cadmium, arsenic)	15 mu (1ha)	Heavy Metal Passivation	June 2017
Hubei Zhuxi Soil Pollution Control And Remediation Project on Cultivation Land	Cadmium and Nickle	678 mu (45.2ha)	Heavy Metal Inhibition	In progress
Hebei Xianghe Old Landfill Reclamation Project	Stale refuse	183 mu (12.2ha)	Deodorization with Membrane, Leachate Treatment, etc.	In progress
Shijiazhuang Chemical Plant Soil Remediation Project	Ammonia Nitrogen and PAHs	123,500 m^3	Ambient Temp. Desorption, Chemical Oxidation	In progress

ENVIRONMENT REMEDIATION – Demonstration Project

Demonstration Project | Organic-Polluted Site Remediation Project at Nanjing Chemical Plant

- **First large-scale soil remediation demonstration project in Nanjing**
- **National key environmental protection demonstration project**

Nanjing Chemical Plant was a large-scale organic chemical and fine chemical production base with a history up to 60 years and about 420,000 m^2 contaminated land.
SUS carried out the soil remediation on its southern area.
The restored land is used for real estate development.

Major Pollutants： Benzene, Chlorobenzene and other VOCs
Scale： 86,000 m^3
Remediation Technology： Chemical Heat Desorption, In-Situ Chemical Injection and Oxidation
Period： 150 days




ENVIRONMENT REMEDIATION – Typical Project

Typical Project | Shanghai Taopu Wisdom City 604 Plots Restoration Project

- **Restoration and redevelopment of industrial contaminated sites**
- **Model of old factory building renovation**

The remediated land and surrounding industrial land will be transformed into **the cultural and commercial center of Sci. & Tech. Smart City in Taopu, Shanghai**, and a model of old factory building renovation.

Major Pollutants： Benzopyrene, Total petroleum hydrocarbon and Fluoride
Scale： 1,364 m^3
Remediation Technology： In-Situ Chemical Injection and Oxidation
Period： 6 months

ENVIRONMENT REMEDIATION – Innovation Project

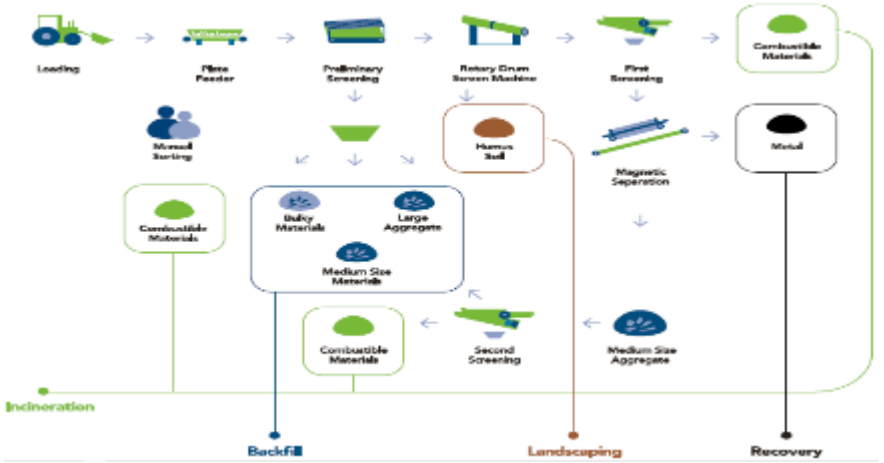
Innovation Project | Hebei Xianghe Old Landfill Reclamation Project

- **Key Inspection Project by Environmental Supervision Authority**
- **Landfill Reclamation and WTE Cooperative Project**

The Project is 50 kilometers away from the Tiananmen in Beijing, and is highly regarded by the Ministry of Environmental Protection, the Environmental Protection Department of Hebei Province, the county government and other authorities. With SUS's advanced solid waste treatment technology and rich experience in operation and management, this project was highly recognized by the local government.

The reclaimed old landfill can be used as the alternative site for the WTE plant.

Scale： 183 mu (12.2ha)
Remediation Technology :
1st Phase - Deodorization with Membrane, Leachate Treatment, etc.
2nd Phase - Overall reclamation, screening and recycling
Period： 10 months




NEW ENERGY

NEW ENERGY – Business Mode

Hybrid

MSW and Biomass co-incineration

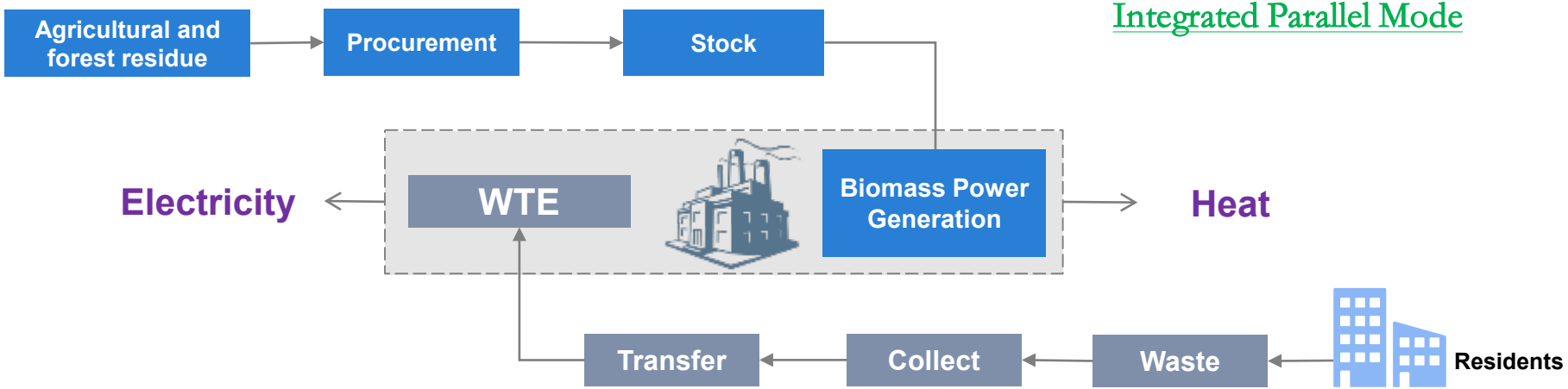
Parallel

Joint configuration of biomass plant and WTE plant

Independent

Independent design of biomass incineration plant

Integrated Parallel Mode



NEW ENERGY – Invested Projects

No.	Projects	Installed Capacity (MW)	Biomass Quantity (ton/yr)	Power Generation (MWh/yr)	Heat (t/h)
1	Liaoning Xifeng Biomass Power Generation	1×30	260,000	240,000	0
2	Jiangxi Jishui Biomass Power Generation	1×30	260,000	240,000	0
3	Henan Guangshan Biomass Combined Heat and Power Generation	1×30	300,000	210,000	80
4	Henan Tangyin Biomass CHP Generation	1×30	300,000	210,000	80
5	Liaoning Kaiyuan Biomass CHP Generation	1×30	300,000	210,000	80
6	Jiling Gongzhuling Biomass CHP Generation	1×30	300,000	210,000	80
7	Liaoning Laobian Biomass CHP Generation	1×30	300,000	210,000	80
8	Liaoning Fushun Biomass CHP Generation	1×30	300,000	210,000	80
9	Liaoning Hengren Biomass CHP Generation	1×30	300,000	210,000	80
Total		**270**	**262**	**195,000**	**560**

NEW ENERGY – Typical Project (1)

Guangshan Biomass Power Project (Parallel)

Scale：

Boiler 1×130t/h

Turbine & Generator 1×30MW

Steam Parameters：

High Temperature & Pressure

Incineration technology:

Water cooled vibratory grate furnace

Project Mode

Parallel

Heat Supply

80t/h

NEW ENERGY – Typical Project (2)

Liaoning Xifeng Biomass Power Generation Project (Independent)

Scale：

Boiler 1×130t/h

Turbine & Generator 1×30MW

Steam Parameters：

High Temperature & Pressure

Incineration technology:

Water cooled vibratory grate furnace

Project mode

Independent

CORPORATE CULTURE

CORPORATE CULTURE – Chairman Message

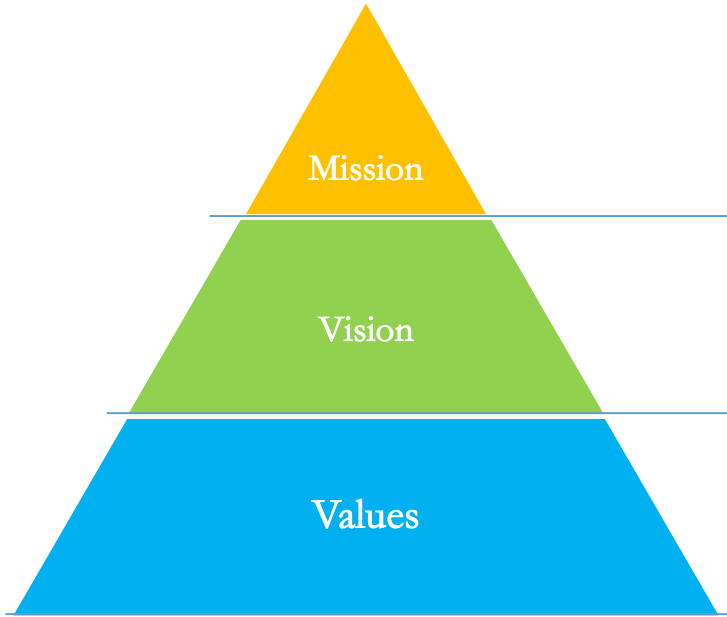
CORPORATE CULTURE

is the life gene of an enterprise, a kind of temperament in the bone.

—— Chairman and CEO, Dr. Long Jisheng

(from the first class of SUS College)

CORPORATE CULTURE

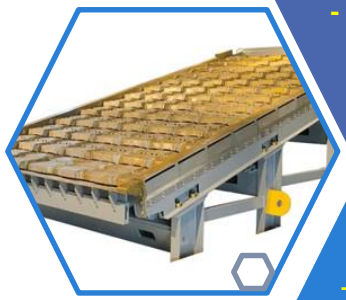


Create a cleaner and friendlier environment

Become a global leader in integrated environmental management

Integrity, Responsibility
Teamwork, Innovation
Client-oriented, Win-win

CORPORATE CULTURE – Social Responsibilities



- Ultra Low Emission
- De-industrialization
- Benefits to Neighbors

- Technical Innovation
- Intellectual Property
- World's Leading

- Media Cooperation
- Leading Self Media
- Spread Environmental Protection Concepts

- History Museum of Municipal Solid Waste
- Industrial Tourism
-Science Base

康恒环境
SUS ENVIRONMENT

- SUS College
- First Training Class
- Cultivating Leading Talents

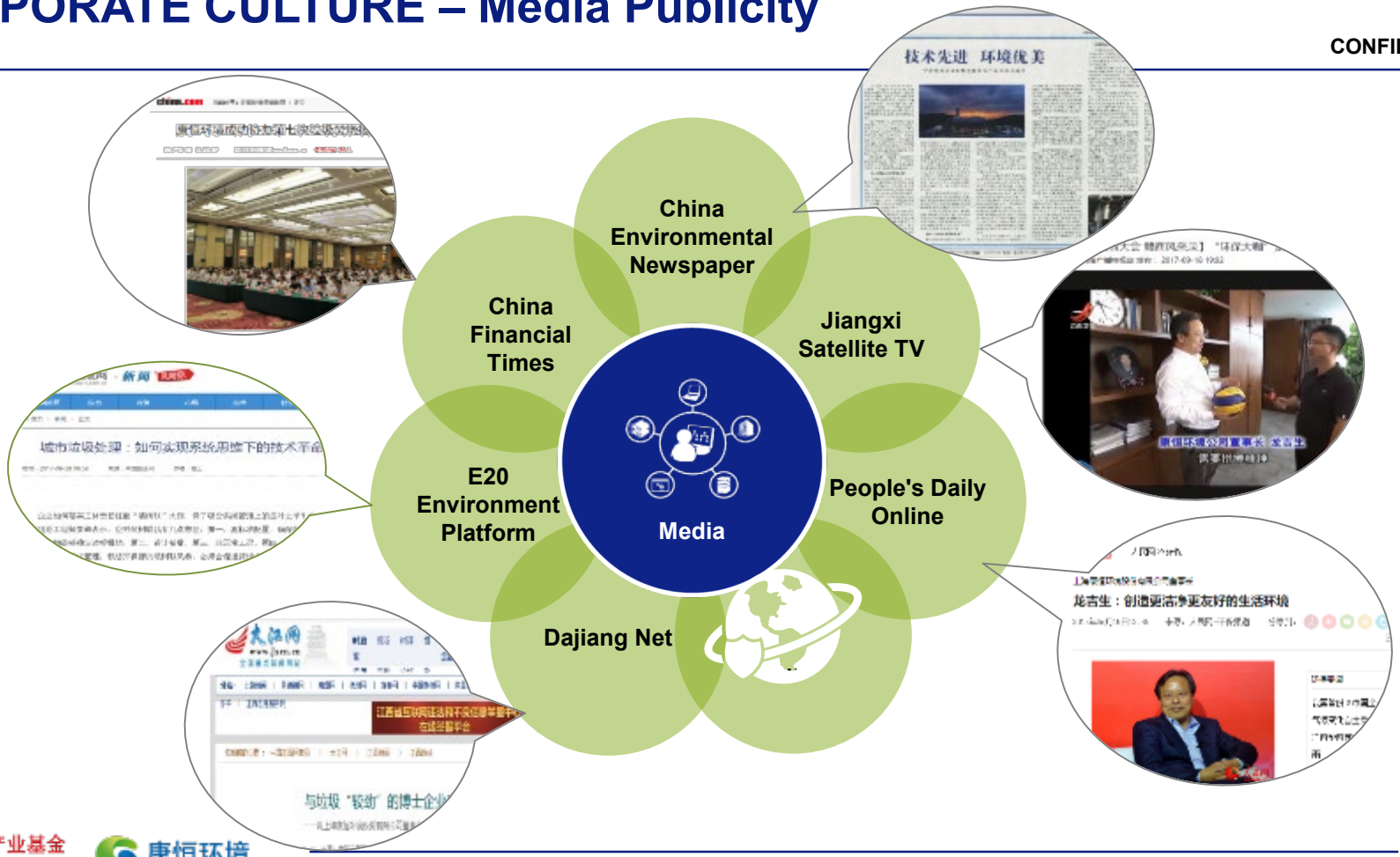
CORPORATE CULTURE – College Cooperation

Cooperated Colleges

Establishment of Training Center for "Belt & Road" Energy and Power Talents

The cooperation includes the establishment of shared laboratory, student training, staff continuing education, joint training of graduate students, etc.

CORPORATE CULTURE – Media Publicity



CORPORATE CULTURE - SUS College

THANKS FOR YOUR ATTENTION!

SUS Environment WeChat Number

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