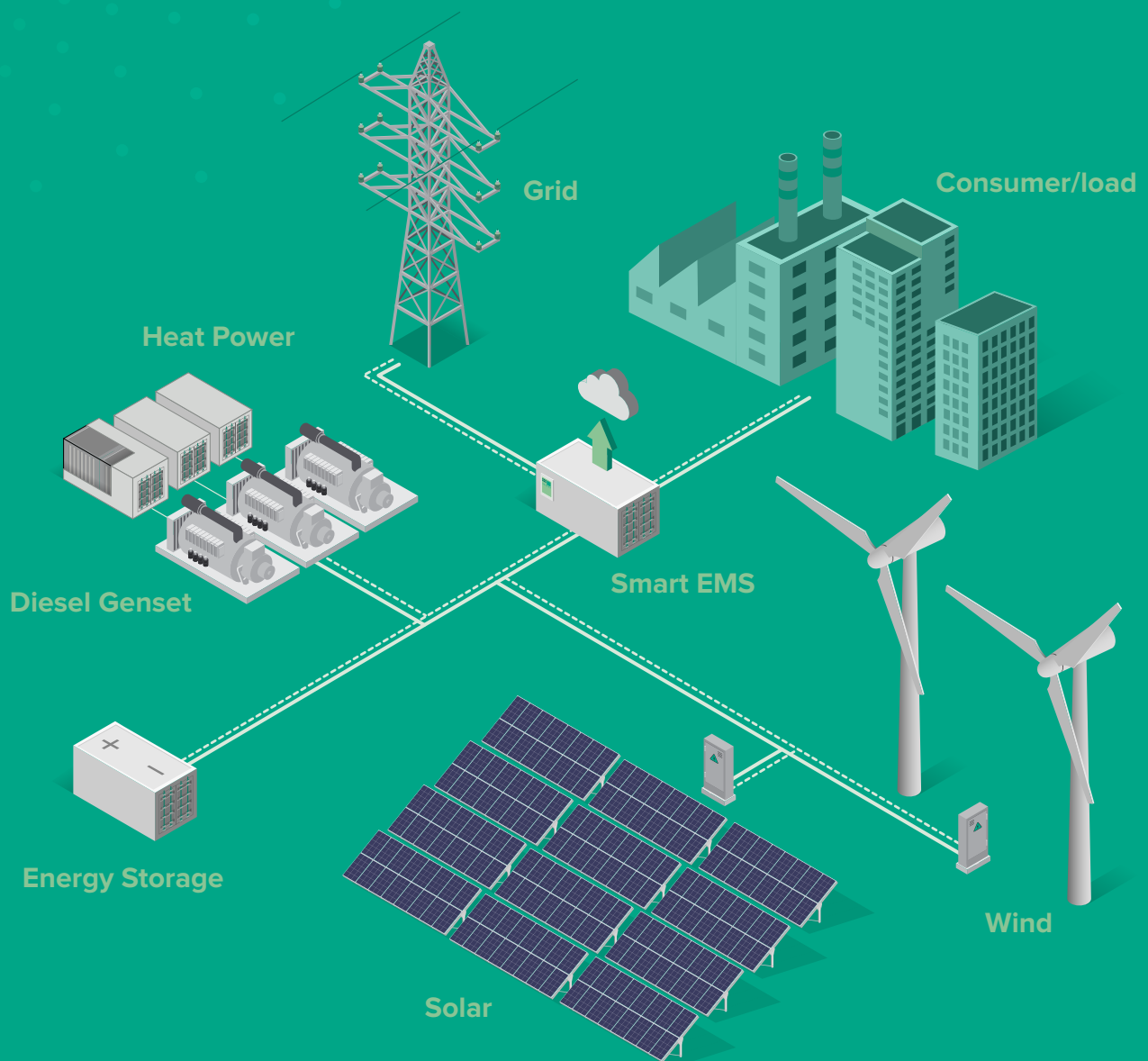


A new take on power solutions.

Fossil Power. Hybrid Power. Heat Power.



COMPANY PROFILE 2019

Company

The end of the fossil-nuclear era has in fact already begun. Nonetheless, a sixth of the population in this world is still without power. This is what defines Caigate; the future to global power solutions. We are now in a generation where hybrid power is just as important to fossil and nuclear power plants. With our power solutions, we are able to achieve:

- **Cleaner Energy.**

The inclusion of renewable energy together with fossil energy (diesel, HFO, gas) is to decrease pollution caused by pure fossil era. Maximise use of available renewable energy, such as solar, hydro, wind, biomass, geothermal, tide, wave, etc.

- **Maximise Efficiency.**

To find the optimal balance for maximum stability and cost effectiveness between renewable and fossil fuel.

- **Stability First Priority.**

To combine renewable energy with fossil energy without compromising stability. Managing OT and IT in order to reliably match the energy supply and demand at all times without fail.

- **Smart Energy.**

Using smart technology to increase cost effectiveness of overall system, as well as minimising emission by using local resources without compromising overall system stability and efficiency in accordance to the customer's demand.

- **Flexible Energy.**

Simple installation providing solutions for any size of application. Our solutions are modularized and can be scalable for fast plug and play systems.

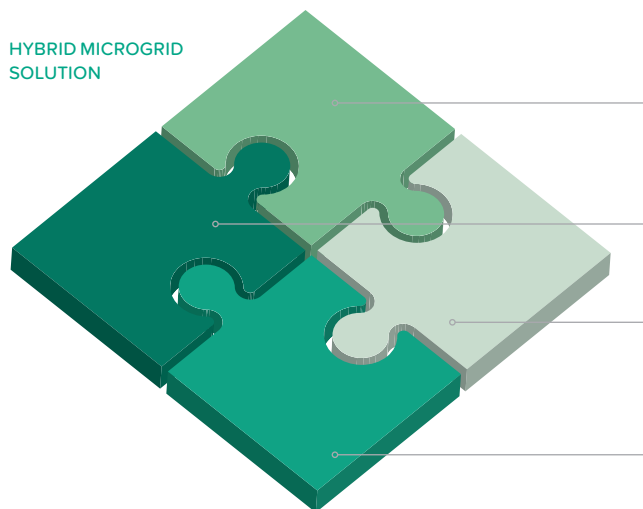
- **Energy Applications.**

Apart from large power plants, we also focus on small plants that can solve pollution and efficiency crisis across the world in order to benefit long-term from renewable energy systems. Solutions for residential, industrial, military, maritime, off-grid and remote islands.

OUR AIM IS TO:

- Make global technology available for everyone.
- Applicable to off-grid, weak-grid, and tied-grid.
- Compact module designs to make them ideal for smaller areas as well as large installations.
- Easy scalable installation.
- Simple plug and play system.
- Smart EMS via the cloud.

HYBRID MICROGRID SOLUTION



IT & COMMUNICATION

ELECTRIC & ELECTRONIC

ENERGY STORAGE

POWER GENERATION

- Fossil Power
- Renewable Energy: Solar, Wind, Geothermal, Biomass, Hydro, Ocean, etc



FossilPower Solution



5 X 2000KW BAOARE CEMENT PLANT, CHAD



1 X 1600KW QINGHAI POLYSILICON FACTORY, CHINA



9 X 2000KW MORUPULE POWER PLANT, BOTSWANA

POWER PLANT

Fast, reliable and cost-effective new plants.

Caigate has a proven record of successful turnkey power plant installations. Implemented with a combination of professional process know-how, design expertise, qualified project management, experienced commissioning engineers and first-rate products.

Why Caigate?

- Fastest deployment within 4 months for large scale power plant.
- Turnkey solutions for up to 50MW plants.
- Support options for maintenance, efficiency optimization, and spare parts during complete plant lifetime.

Plant Applications

HFO/Diesel/Gas plant located in remote areas, tropical areas, isolated islands, high altitude, mountain areas, etc.. Typically for mine, oil and gas, military, industrial, and residential purposes.

DIESEL GENERATING SET

World-class standards for continuous, prime, and standby power.

Caigate offers the largest range of specifications available for Diesel, HFO, and Gas generating set. Single unit capability ranging from capacity of 10kVA to 16000kVA, frequency 50Hz/60Hz, and voltage up to 15kV. Includes open and enclosed generator sets for extreme terrains which offer outstanding value for money, high efficiency, low fuel consumption, and global emissions compliance. Key customisation options further enhance the standard product, offering versatility and flexibility to match your power needs. Selecting the right diesel generator set for your application, and installing it is our mission.

Why Caigate?

- Compatible with all top-tier standard diesel engines, alternator, and controller.
- Compact design and high-power density for optimal space-saving and fuel efficiency.
- Flexible customisation to match your power needs.
- On-site customer product training.
- Worldwide 24/7 technical support.

BLACK START

Focusing on large coal-fired and gas turbine power plant applications.

In the event of a blackout, a reliable black start system is essential. Caigate offers a complete turnkey solution that will fit your need fast, no matter your engineering system, size or configuration of your power plant. We combine decades of expertise, in Africa, Asia, and South America regions in gas turbine and diesel generation sets to produce systems that meet the highest quality standard in the industry.

Why Caigate?

- Provide full project engineering support in every project, including conceptual design, detailed engineering, software and hardware delivery, and commissioning.
- Worldwide support to ensure maximum reliability.
- Customizable design for unique environment and setting.
- Over 10 successful blackstart systems for coal-fired and gas turbine power plant projects.

		0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000+
DIESEL		450 – 3350 KVA				50Hz - 1500rpm						
		790 - 4000 KVA				60Hz - 1800rpm						
		100 – 2750 KVA				50Hz - 1500rpm						
		100 – 3125 KVA				60Hz - 1800rpm						
		650 – 2500 KVA				50Hz - 1500rpm						
		750 – 1710 KVA				60Hz - 1800rpm						
		1250 – 2500 KVA				50Hz - 1500rpm						
		600 – 2500 KVA				60Hz - 1800rpm						
HFO						2615 – 5845 KVA				50Hz - 1000rpm		
						2292 – 5256 KVA				60Hz - 900rpm		
		880 – 16000 KVA								50Hz - 750rpm		
		887 – 14200 KVA								60Hz - 720rpm		
GAS		500 – 5625 KVA								50Hz - 1500rpm		
		500 – 2500 KVA				60Hz - 1800rpm				3750 – 5063 KVA 60Hz - 900rpm		

HybridPower Solution

Smart hybridisation taking cleanliness efficiency to the next level

Most power today are generated from fossil fuels such as coal or diesel, and only a small fraction of renewable energy have been effectively utilised. Caigate offers a combination of cutting-edge hybrid power technologies to maximise total power generation output by sustaining the reliable generation from fossil fuels and consistently raising the stability and ratio of use in local renewable energy. We offer a wide range of hybrid power system from standalone hybrid power systems and hybrid power plants up to tens of megawatts scale.

Safe and Reliable

No matter how complex the system becomes, our number one priority is safety, and second is to be as reliable, if not more, as traditional fossil powered generators.

Affordable Power

Make power available everywhere, especially for the third world countries. Everyone deserves a fair chance in life.

Local Resources

Maximize and make use of local resources, such as solar, biomass, wind, hydro, ocean, geothermal, etc.

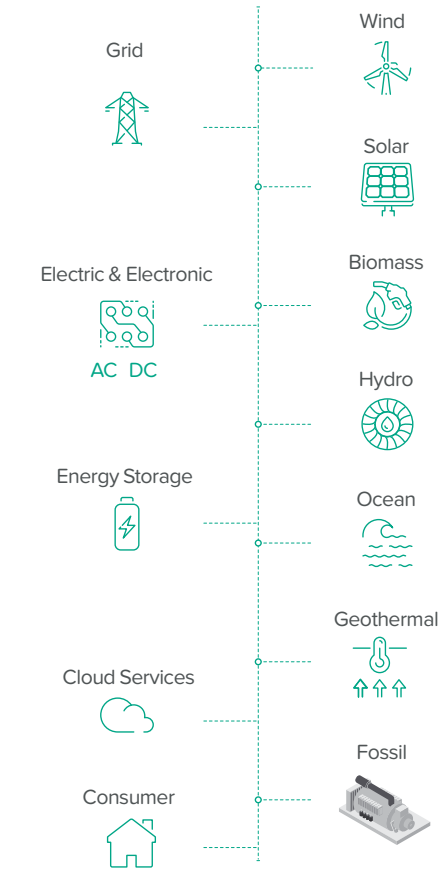
Customer Simplicity

Simple setup, simple management, and easy to use.

HeatPower Solution

ORC, WST, Sterling and Steam Turbine Technologies turn waste heat to power.

In traditional industrial processes, 50% of the heat energy is wasted and released into the environment. In the industrial field of power generation, typically in coal, nuclear, diesel power plant, and gas turbine, no matter whether the model is CHP or single combined, there is still large amounts of heat energy of small capacity, low pressure, and low temperature not being used. Traditional internal combustion generators only convert up to 40% of energy into electricity, which means the remaining energy are wasted in exhaust and jacket water. With Caigate's ORC, WST, Sterling and steam turbine technology, dependent on size of application, can efficiently recover thermal power from the exhaust and jacket water which is otherwise wasted, and in return generate extra electricity, lower CO2 emissions, and bring significant fuel cost savings.

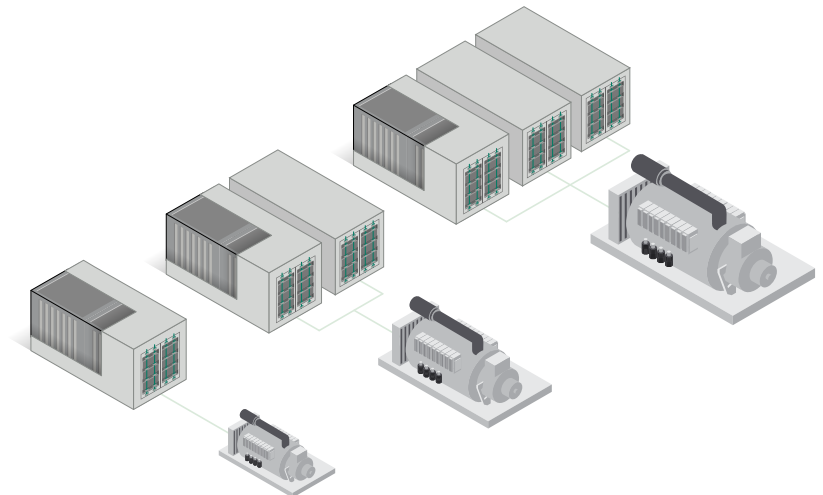


DIESEL GENSET + MODULAR HEAT POWER

Captures energy from heat sources at as low as 70 °C

Wide Applications:

- Biogas, Landfill gas
- Biomass
- Geothermal
- Industrial Waste Heat Recovery
- Power Plant
- Maritime
- CSP (Concentrated Solar Power)
- Cement Plant
- Steel Plant



Background

Caigate has been deeply rooted in the diesel generation business for more than 25 years. Our success could not have been achieved without fulfilling our customer's vision and we understand that each projects are unique. We work with our customers to define the specific needs of each project and work around the clock to create the best integrated solution that is reliable, quick to deploy, inexpensive to run, and make sure that all the specific requirements are met.

25+

Years

25 Years of dedication in the power industry

Being one of the pioneers of diesel generator power market, we have abundant experience and in-depth understanding of power technology and market. Early distributors for MAN, Mitsubishi, Kohler, Broadcrown, and Volvo for Chinese EPC companies.

32

Countries

Projects located in 32 countries & regions

Our footprint can be found in 32 countries and regions around the world, particularly in developing countries such as Asia, Africa, South America, North America and Pacific regions.

400+

Megawatts

More than 400MW total generator capacity

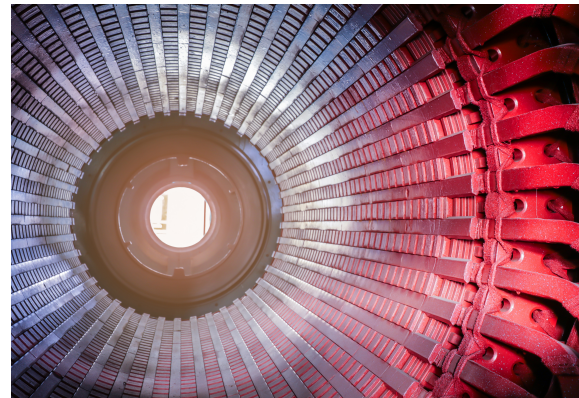
During the last two decades, we have delivered over 150 projects with a combined total generator capacity of more than 400MW from power plants, blackstart systems, hybrid power, and back-up gensets.

150+

Completed Projects

Over 150 completed projects

The applications vary from cement, oil and gas, mines, power plants, chemical, sugar, transportation, maritime, military, etc. Located at high altitudes, remote islands, off-grid, and deserts.



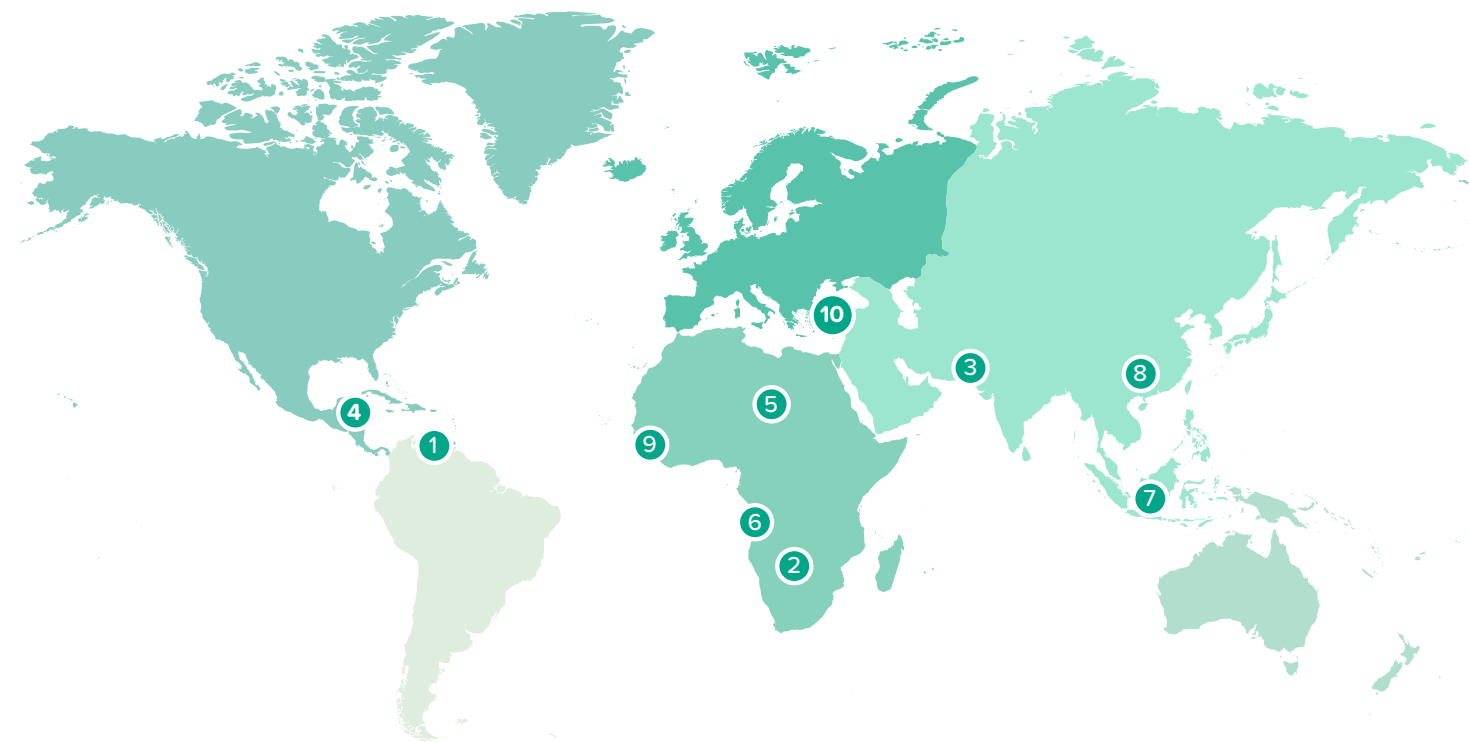
OUR BACKGROUND

- Power Plant
- Diesel Genset (Gas, Diesel, HFO)
- Blackstart

OUR ROLES

- Solution Provider
- Engineering, Procurement and Construction (EPC)
- Commissioning
- Operation & Maintenance (O&M)
- Independent Power Producer (IPP)

Achievements



MAJOR REFERENCES

- 1. Blackstart System**
New central Siemens Gas Turbine Power Plant
Venezuela, South America
5 x 1800KW @ 4.16KV, 60Hz, 1800rpm
High Speed Engine/Diesel
- 2. Blackstart System**
Morupule B 4 x 150 MW CFB Coal-Fired Power Station
Botswana, Africa
9 x 2000KW @ 6.6KV, 50Hz, 1500rpm
High Speed Engine/Diesel
- 3. Blackstart System**
Engro Powergen Hitachi Gas Turbine Power Plant
Pakistan, Asia
2 x 1600KW @ 6.6KV, 50Hz, 1500rpm
High Speed Engine/Diesel
- 4. Combined Heat & Power**
Sugar Factory Power Station Belize, North America
2 x 2000KW @ 13.8KV, 60Hz, 600rpm
Medium Speed Engine/HFO
- 5. Diesel Power Plant**
200,000 T/year Baoare Cement Plant
Chad, Africa
5 x 2000KW @ 6.6KV, 50Hz, 600rpm
Medium Speed Engine/HFO
- 6. Hybrid Power Plant**
4 Solar & Diesel MINEA Power Plant.
Angola, Africa
12 x 800KW @ 400V, 50Hz, 1500rpm
High Speed Engine/Diesel
- 7. Diesel Generator Set**
LPI-KOMERING Sugar Refinery Project
Indonesia, Asia
3 x 1600KW @ 6.6KV, 50Hz, 1500rpm
High Speed Engine/Diesel
- 8. Diesel Generator Set**
Qinghai Polysilicon Refinery
China, Asia
1 x 1600KW @ 400V, 50Hz, 1500rpm
High Speed Engine/Diesel
- 9. Diesel Power Plant**
Conakry Capital Diesel Power Plant
Guinea, Africa
10 x 1000KW @ 400V, 50Hz, 1500rpm
High Speed Engine/Diesel
- 10. Diesel Generator Set**
Hydropower Plant
Turkey, Europe
2 x 260KW @ 415V, 50Hz, 1500rpm
1 x 120KW @ 415V, 50Hz, 1500rpm
High Speed Engine/Diesel



10 X 1000KW CONAKRY POWER STATION, GUINEA

32

Countries

150+

Installed Projects

400+MW

Installed Capacity

Expertise



CUSTOMISED SOLUTIONS

We listen to your needs

Customizing has become our nature and philosophy behind all of our products. We collect and provide the most suitable technology from around the world that matches our customer's needs the best. From customer requirements, power demand patterns, piping to geological analysis, we create the perfect solution that utilises fossil fuel, hybrid power, and heat power available to each project. We not only listen to our customers, we provide solutions that our customers often don't even know exists.



MANUFACTURING & PROCUREMENT

We can build it for you

Once the project criteria has been set, we can break down the complexity of the system into a detailed procurement list. We have partners from around the world that can provide the most complex systems, to the nuts and bolts of the hardware, at very competitive prices. Throughout the process, we guarantee to meet the utmost quality and lead time for the project. At the end, we can package into one system for you.



DESIGN & ENGINEERING

Our proudest trait

For every project, Caigate will lead all design and engineering. With our expert engineers, we can customise and configure our products to match the customer's needs. All of our design work is done in industry standard platforms, which allows stress-free communication with our customer's standard format. If you have any questions about the design or technology, we are more than happy to explain to you until you become experts with the design.



CONSTRUCTION & COMMISSION

Comes in one package

At Caigate, we incorporate all possible power solutions into one package for our customer, and that includes construction and commission. We have the capability and experience in providing construction and commission according to customer's request. Our service meets the highest-standard areas around the world, including areas where other constructors refuse to go, such as deserts, oceans, and extreme weather conditions, etc. With over 150 successful projects and many professionally trained engineers, we give our customers one-of-a-kind solution at a very competitive price.



OPERATION & MAINTENANCE

25 years of proven track record

Caigate designs, build, and operate turnkey power plants globally. Of course, that goes without saying, we also maintain operation of over 150 projects. We understand very well the importance of the product life-cycle operation and maintenance. We have a near-perfect track record with positive feedback for the past 25 years.



INDEPENDENT POWER PRODUCER

Providing new business model opportunities.

Caigate's vision is to do all we can to provide the best technology and power solutions globally, especially to developing countries. Maybe you have a new technology, but limited access to life-changing projects, or you have the funding but not sure which is the best technology to choose, please contact us! Caigate can provide an alternative support and help you solve your financial challenges. Let us create a new business model for you.

5 X 1800KW NEW CENTRAL POWER PLANT, VENEZUELA



Caigate is all about providing innovative technology into actual life-changing projects – people cannot live without power! It's about getting the most power out of your system with the least amount of work and cost.

Our mission is simply to “create a cleaner and smarter power solution”.

Contact us today and we'll get back to you within 48 hours.

Caigate Hybrid Microgrid Limited

225 John Eccles House
Robert Robinson Avenue
Oxford Science Park
Oxford
OX4 4GP
United Kingdom

info@caigate.com
www.caigate.com