

**ResearchInChina**

## China Smart Grid Equipment Segmented Market Report, 2009-2010

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**1. China Smart Grid Equipment Development Environment**

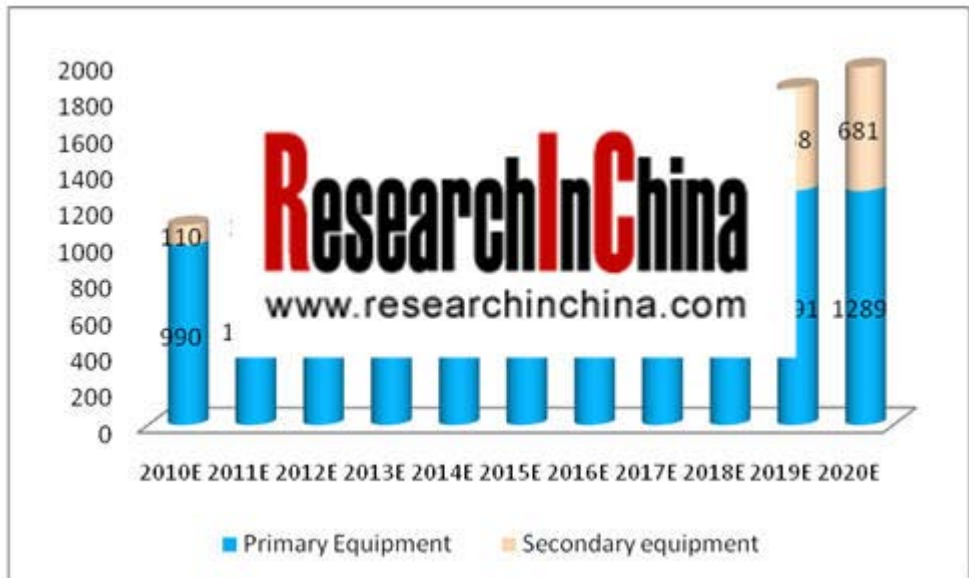
**1.3 Smart Grid Equipment Benefits from Smart Grid Construction**

Smart grid equipment is the power grid equipment meeting the intelligent needs of power grids, including smart meters, smart scheduling, digital substations, energy storage batteries, electric vehicle charging equipment, power distribution automation, and on-line monitoring.

The development of China's smart grid planning and construction in 2009 has benefited smart grid equipment the most. According to the statistics of the UHV construction department of State Grid, of the more than RMB200 billion investment of State Grid, more than 70% will be converted into equipment and materials. With the advancement of smart grid construction, the demand for secondary equipment such as power grid scheduling systems and digital substations will increase significantly. (Note: primary equipment refers to the equipment transferring strong current or energy, such as transformers, switches and cables; secondary equipment transfers weak current, and mainly carries out protective monitoring on primary equipment)

**State Grid Primary Equipment and Secondary Equipment Investment, 2010E-2020E**

*(RMB100 Millions)*



Source: ResearchInChina

China's smart grid construction will be in full swing in 2011 and secondary equipment will be a top priority. It's expected that the investment of State Grid will reach RMB\*\* trillion in the next decade, including about RMB\*\*billion in secondary equipment. The annual compound growth rate of secondary equipment demand will reach\*\*, and its proportion in the total grid equipment investment will increase from the current 5% to 11% of the next decade together.

China's smart grid construction has a large coverage, including power generation, transmission and distribution, electricity utilization, and scheduling. In terms of the demand for smart grid equipment, energy storage batteries account for the largest demand in power generation; chromatogram monitoring devices, digital substations, flexible transmission devices, UHV equipment, UHV control and protection equipment are needed in power transmission and substation; power cabinets, power distribution automation devices and smart meters are needed in power distribution and utilization; smart scheduling is needed in the scheduling link.

***Ranking of Key Secondary Equipments by Future Market Size***

Rank	Equipment	Annual Size in the Next Decade (RMB100 Millions)
1	Smart Meter	71-90
2	Energy Storage Battery	45-60
3	Digital Substation	40-45
4	Flexible Power Transmission	29-41
5	Electric Vehicle Charging Cabinet	26-30
6	Power Distribution Automation	18-20
7	Intelligent Scheduling	18-20
8	Online Transformer Monitor	10-12

**2. China’s Smart Meter Market**

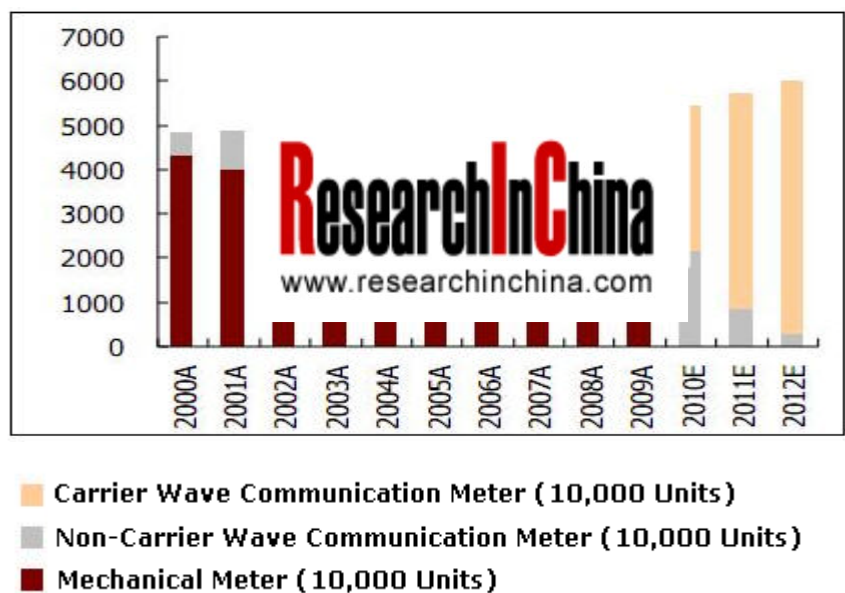
**2.1 Smart Meter**

With smart chip like CPU as core, smart meter is a general designation of energy meter with the functions of automatic metering and billing, digital transmission, overload protection and electricity management based on computer technology and communication technology. At present, we have single- phase smart meters and three-phase smart meters. By function and application, smart meters can be fallen into multifunctional meters, multi-rate watt-hour meters, prepayment meters, carrier wave meters and network meters. According to customers’ requirements, there has derived multi-rate prepayment meters, carrier wave multi-rate meters, carrier wave prepayment multi-rate meters, etc.

**2.2 Status Quo**

China has more than 500 smart meters manufacturers, with the overall annual output climbing to 200 million units. In 2008, the global sales volume approximated 133 million units, of which, a large proportion of 39% (approximately 51.5 million units) was from China, topping the list. However, the moderately increasingly demand for meters in China contributes to the continuous demand of meter replacement these years.

**Output of China’s Main Meters, 2000-2012E**



Source: ResearchInChina



Due to the oversupply of mechanical meters, the market has progressively dominated by mechanical meters and carrier wave communication meters. Smart meters have increasingly gained attractions from enterprises in the relevant industries because of its advantages like convenience, fast speed and high-degree automation. However, the current development of smart meter industry in China still has been in its original stage for application, featuring single track operation and remote automatic meter reading. With the lowest degree of intelligence, the application of smart meters in China is mainly for the replacement of mechanical meters.

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### **2.3 Prospect**

The smart meter and electricity information collection system China is promoting is a kind of AMR system, which can send billing messages of electricity consumers to administration center instead of reading meters from house to house. The smart meters in China are expected to promote to AMI, a kind of advanced meters that can provide real-time two-way communication facility service. AMI is the first step in the process of smart meter construction, engaging in lots of facilities like smart meters and sensors.

China's investment in AMI smart grid has taken up a lion's share. Although the deployment of smart meters of China is still in its primary stage, the smart meter-related industry is expected to generate RMB 7 billion each year once the construction of smart grid is carried out in an all-round way.

Suppose that the newly-installed or updated meters are all smart ones since 2010, the market capacity of AMR smart meters is expected to reach the level in previous years in the next 5 years with annual market capacity of around 50 million worth RMB7.1 billion-RMB 9 billion. If taking the buildings under construction into consideration, the smart meter market will become more expanded.

## 2.4 Key Companies

### 2.4.1 Clou

Shenzhen Clou Electronics Co., Ltd. is a high-tech enterprise founded in 1996 and one of the leading power equipment manufacturers in China. Specializing in developing, producing and marketing of Electric kWh Meter, Meter Test Bench and Calibrators, Automation of Electric Systems, Power Supply, Reactive Power & Harmonic Compensation and Frequency Inverters.

#### *Main Products of Clou*

	Type	Main Products
Electricity Automation	electricity automation	Electricity Management System
	Power	Direct Current Switch Power, Electricity Inverter Power, etc
	Frequency Conversion Products	HV/LV Frequency Converter, etc
Instruments and Meters	Electronic Power Meter	Multifunctional, Muli-Rating, Prepayment ,Multi-user, Carrier Wave, Ordinary
	standard Instruments and Meters	Multifunctional Standard Meter

Source: ResearchInChina

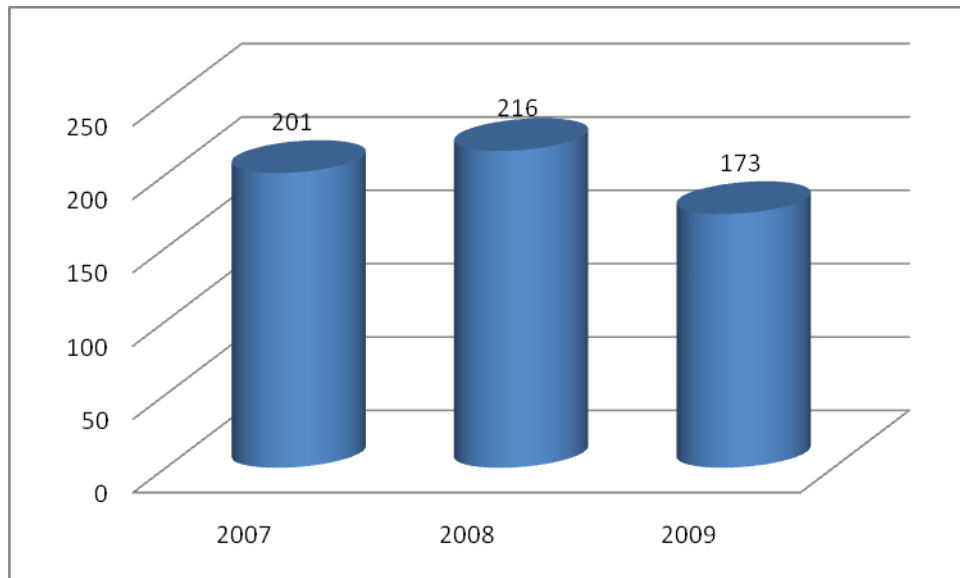
#### *Revenue of Clou by Main Product, 2008-2009 (RMB in Millions)*

Sub-Products	2008	2009	Year-on-Year Growth
Electricity Management system	198.0	152.5	-23.0%
Power Operation Supply	**	**	**
Frequency Conversion Products	**	**	**
Electronic Power Meter	97.5	**	
Standard Instrument and Meters	69.3	**	**
Others		**	**
Total Operation Revenue	394.5	**	**

Source: ResearchInChina

1. Power Automation

**Power Automation Business Revenue of Clou, 2007-2009 (RMB in Millions)**



Source: ResearchInChina

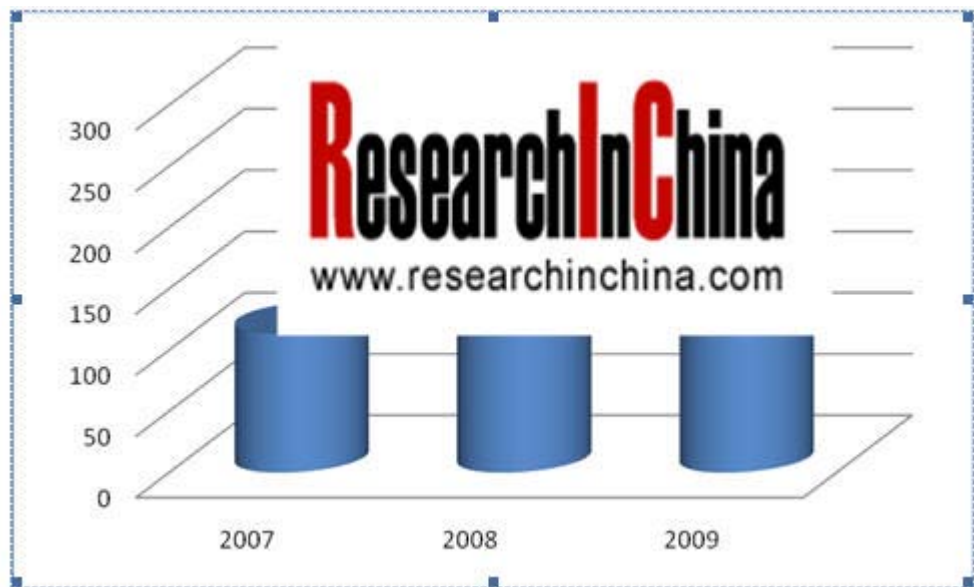
The market occupancy of Clou's power automation business ranks the second place in China next only to Wasion Group. In 2009, the company's master station software system occupied the sweeping proportion in the total, driving the gross profit margin hike to 48% of its power automation business. However, giving the limited software system market, the terminal equipment sector will still dominate the market in the future.

Clou, as one of the four enterprises drafting up the related product standards, has long been engaged in the production of power operation supply. As early as 2009, power products from the company passed the assessment of the State Grid and participated in the open bidding organized by the State Grid, expanding their business toward other fields like thermal power, water power, wind power and garbage power. In 2010, the company will strive to conduct the whole solution R&D of electric vehicle charging station, making preparation for the charging station bidding organized by the State Grid.

Shenzhen Clou Inverter Co. was established in September 2008. As a holding subsidiary, the company specializes in the development, production and sales of frequency converters.

2. Instruments and Meters

*Electric Instrument Revenue of Clou, 2007-2009 (RMB in Millions)*



Source: ResearchInChina

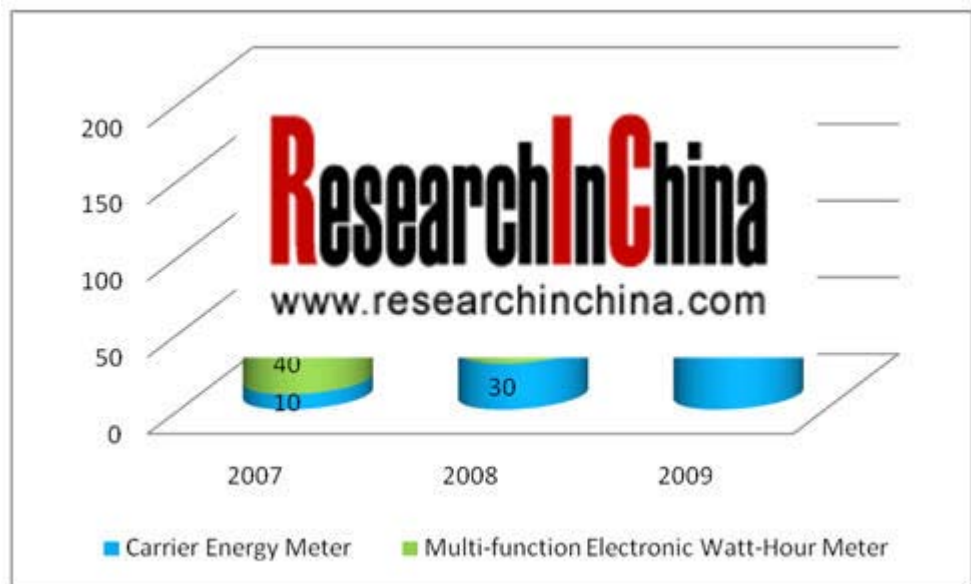
Recent years has seen a rapid development of the Clou’s instruments and meters business. In 2009, its sales revenue grew by \*\* to RMB\*\*million.

Clou Electronics has long been giving priority to the development of power meters. Based on the bidding result of smart meters organized by the State Grid, there are only two companies including Ningbo Samsung and Clou Electronics whose market share exceeding 10% among the bidding winners engaged in the production of single-phase meters. In particular, the market shares of Clou climbs to \*\* from \*\* in the 2009 level.



Clou works hard to develop its multifunctional power meter and carrier wave meters. In terms of the market occupancy, there is a huge gap between its multifunctional meter business and carrier wave business. As a kind of comparatively mature products, the industrial competition pattern in recent years is stable. Holley Metering took the leading position in this industry with its market shares exceeding \*\*. Clou Electronics still features the top place with its market occupancy approximating \*\* in multifunctional meter sector. Changsha Wasion Group and Jiangsu Linyang dominate the emerging market-carrier wave market, but Clou also made great progress in the industry with its market occupancy higher than that of multifunctional meter market. In particular, Clou represents \*\* market shares in Heilongjiang, far ahead the other domestic companies.

**Meter Revenue of Clou by Type, 2007-2009 (RMB in Millions)**



Source: ResearchInChina

The major competitors of Clou Electronic include Wasion Group, Linyang, Belfuse and Haoningda Meters in industries like smart meters and electricity collection system. Wasion is a big shot among listed companies. In scale, Haoningda is as competitive as Clou. According to the data in 2008, the gross profit margin of Clou from meter sector topped 48%.

***Meter Business Operations of Top Three Listed Meter Companies, 2008***

Indicator (RMB in Millions)	Clou	Wasion	Haoningda
Revenue	167	**	156
Cost	**	-560	**
Gross Profit	**	**	**

Source: ResearchInChina

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