中国电动车
CHINA ELECTRIC VEHICLE

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中国电动车最佳展示平台
Advanced Platform
for China Electric Vehicle

“电池大王”钟馨稼：
WINSTON CHUNG KNOWN AS THE BATTERY KING

要圆人类终极清洁能源的中国梦
LETTING CHINA DREAM IN CLEAN ENERGY COME TRUE

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TSMC ELECTRIC BUS EQUIPPED
WITH WINSTON RARE EARTH LITHIUM-ION BATTERIES

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从汽车大国迈向汽车

The Only Way to

2014年5月24日，习近平主席在上海汽车集团技术中心考察时，提出了“发展新能源汽车是中国从汽车大国迈向汽车强国的必由之路”的著名论断。

之后，7月21日国务院下发《关于新能源汽车推广应用的指导意见》解决了过去争论不休或是含糊不清的许多问题。对我国电动汽车的推广应用提出了实施路线图，制定了6个方面25条具体政策措施，明确了以纯电驱动为电动汽车发展的主要战略取向。

中国汽车产业产销量的疾速发展是从1984年成立“北京吉普”和“上海大众”等合资企业开始的，30年后，中国汽车产业全年“产”和“销”都超过了2000万辆，连续五年位居全球第一。在这个意义上，中国毫无疑问是一个汽车大国，而且是第一大国。但是，以50:50为基本合资模式的汽车产业，其项目、资金特别是核心技术受制于人，我们只是提供生产基地及销售市场而已，按照燃油汽车发展的强大惯性，很难改变当下的格局。要实现汽车强国的目标实在难啦！

中国要成为汽车强国亟需有一个转型发展的契机。在这样一个节点上，能源危机和环境危机引爆了新能源革命，电能是当代新能源的主力技术。必须扬弃燃油汽车，创新电动汽车，实现机动车辆的动力转型。

几年前，麦肯锡就得出结论：“中国正面临着重塑全球汽车行业的独特机遇”；英国《金融时报》指出：“美国对汽车产业长达一个世纪的统治已带着耻辱走到了尽头”。“中国政府计划跨越一代汽车技术，成为环保汽车革命的领跑者。”中国拿什么来领跑呢？答曰：纯电动车！

汽车是工业文明的杰作！一百多年前，工业文明有两大亮点，交通工具面对两种抉择：最先是“轮子”与“电力”结合发明电车，后来才是“轮子”与“石油”结合创新汽车。1886年两位德国人获得第一辆汽车专利权；上世纪30年代福特T型汽车成功淘汰电车；70年代能源危机，小排量丰田车风行；80年代环境保护，汽车文明遭到质疑；

On May 24, 2014, Xi Jinping chairman in Shanghai Automotive Group technology center during his visit said that the development of new energy vehicles was the only way for China from a small to big car powerhouse.

Later, on July 21, the state council issued its guiding opinon about the the promotional use of new energy vehicles, which addressed a lot of problems. It puts forward the implementation roadmap in the regard, and develops 25 policy measures in 6 aspects, and define the main strategic orientation where the pure electric vehicle is developed.

China's automobile industry rapidly developed from 1984. In this year, joint ventures such as Beijing Jeep and Shanghai VW were set up. After 30 years, China produces and sell more than 20 million vehicles, being the world's first five years in a row. In this sense, China is undoubtedly a car powerhouse. For joint ventures with the capital ratio of 50:50, China party has no core technologies, instead, we only are a production base and market. In the market of the traditional fuel cars, it is difficult for us to change the present pattern. To realize the goal of being a real automobile powerhouse is really difficult!

To become a car powerhouse, China must have an opportunity. In such a node, the energy crisis and environmental crisis set off a new energy revolution, and electricity is the main force of contemporary new energy technology. We must discard fuel cars, and develop electric cars, in order to realize the dynamic transformation of motor vehicles.

A few years ago, McKinsey concluded that "China is facing the unique opportunity of reshaping the global auto industry". The Financial Times said, "The domination of the United States for a century in the auto industry has come to an end with shame". "The Chinese government plans to adopt new automotive technology and become the leader of the green car revolution." What technology will be taken by China? Answer: the pure electric vehicle!

Car is the masterpiece of industrial civilization! More than one hundred years ago, industrial civilization had two big bright spots. Traffic tool was faced with two choices: the first was the the tram which combined wheels and electricity; the second was the fuel car which combined wheels and oil. In 1886, two germans won the patent right of the fuel car. In 1930s, the model T Ford successfully eliminated the tram. The energy crisis in 1970s made the small-engine car Toyota popular. The environmental protection in 1980s let the fuel car was questioned. At the start of the new centure, the fuel car arrived a peak, and its tail gas pollution was seriously hated.

强国的必由之路
the Car Powerhouse

文/ 本刊评论员 Text / Our Commentator

世纪之交汽车文明达到巅峰状态，暴露出“死穴”——尾气污染。

汽车，这个自由机器、天下第一商品，在人类的私密生活和社会活动中，扮演着非凡的角色，人类离不开它。哲学家拉卡托斯说：没有人文的科技是盲目的，没有科技的人文是空洞的。汽车的人文水平极低，其尾气污染危害人类健康，是“盲目”的科技——不，是“缺德”的科技；汽车的科技水平也不高，能源利用率不过12～20%，应该轮到被淘汰的命运了！这不仅是汽车产品的缺陷，而且是汽车文明的陷落。

当今之世，电车取汽车而代之，电车文明取汽车文明而代之，已经没有悬念！中国汽车产业赶上了汽车这一次最重要的技术革命，这是百年难逢的机遇。我国汽车工业在燃油汽车领域三次错失良机，未能掌握关键核心技术，远未达到国际先进水平。但是，在电动汽车领域我国具有三大优势：一是技术优势，技术水平与国外相比已在前列；二是资源优势，我国拥有丰富的锂与稀土资源；三是市场优势，中国自身就有世界最大的电动车市场。

从现在起到2030年将是汽车发展的黄金时段。麦肯锡预测：到2030年，中国将赶超美国位列第一。中国将增加2.7亿辆汽车，其保有量将达到2.87亿辆，将是那时世界汽车总数的30%。中国有可能分得电动车市场最大的一块蛋糕！2030年，也正是中国进入富裕社会的时段，富裕的中国人要“以车代步”，唯一可供选择的方案，就是向中国消费者提供优质的电动车！

在后汽车文明时代，新能源革命的目标是要解决能源和环境双重危机，扬弃燃油汽车，创新纯电动车。只要我们把握好机遇，从国家战略高度发展纯电动车，成为世界电动车市场上强有力的参与者，中国必将从汽车大国迈向汽车强国，或许还能从这个领域实现中国对第三次世界工业革命和第六次世界科技革命的卡位布局。

Cars is a machine letting us get freedom and plays a special role in our private and social lives. We cannot be without it now. Philosopher Lakatos said that the technology without humanity was blind and the humanity without technology was empty. Cultural levels of cars is very low, and their exhaust pollution harms to our health. So, it is a blind technology and is "wicked". Technical levels of cars are not high too, for they have only 12 ~ 20% in energy efficiency. They should be eliminated! Fuel cars should be replaced by environmentally friendly cars.

Nowadays, there is a trend that the fuel will be replaced by EV, and this has no suspese. China's automobile industry catches up with the most important technology revolution. I is difficult for us to rarely meet such opportunity in one hundred years. Automobile industry in our country missed three opportunities in the past. Due to failing to grasp the key core technology, we are far from the international advanced level. However, in the field of electric vehicles, our country has three advantages: the first is the technology advantage; the second is the resource advantages (for example, our country is rich in lithium and rare earth resources); the third is the market advantage, for China itself is the world's largest electric car market.

From now until 2030 will be the prime time for the development of the auto industry. McKinsey predicts that by 2030, China will overtake the United States to rank first. China will increase 270 million cars, its ownership will reach 287 million. It will have 30% of the world's total number of cars at that time. China is likely to get the biggest piece of the cake in the EV market! In 2030, China will be into the affluent society, and the affluent Chinese will use high quality electric cars as the best choice in their life!

In the future, the aim of the new energy revolution is to solve energy and environmental crises, abandoning the fuel cars, and developing pure electric vehicles. As long as we grasp the good opportunity to strategically develop pure electric vehicles and become a powerful global participator in the EV market, then China will certainly become from a weak to strong car country or even will play a more important role in the next technical revolutions in the world.

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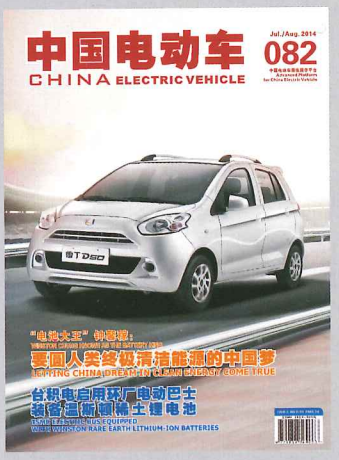

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特别报道 Special Report
“电池大王”钟馨稼
Winston Chung known as the Battery King

10 要圆人类终极清洁能源的中国梦
LETTING CHINA DREAM IN CLEAN ENERGY COME TRUE

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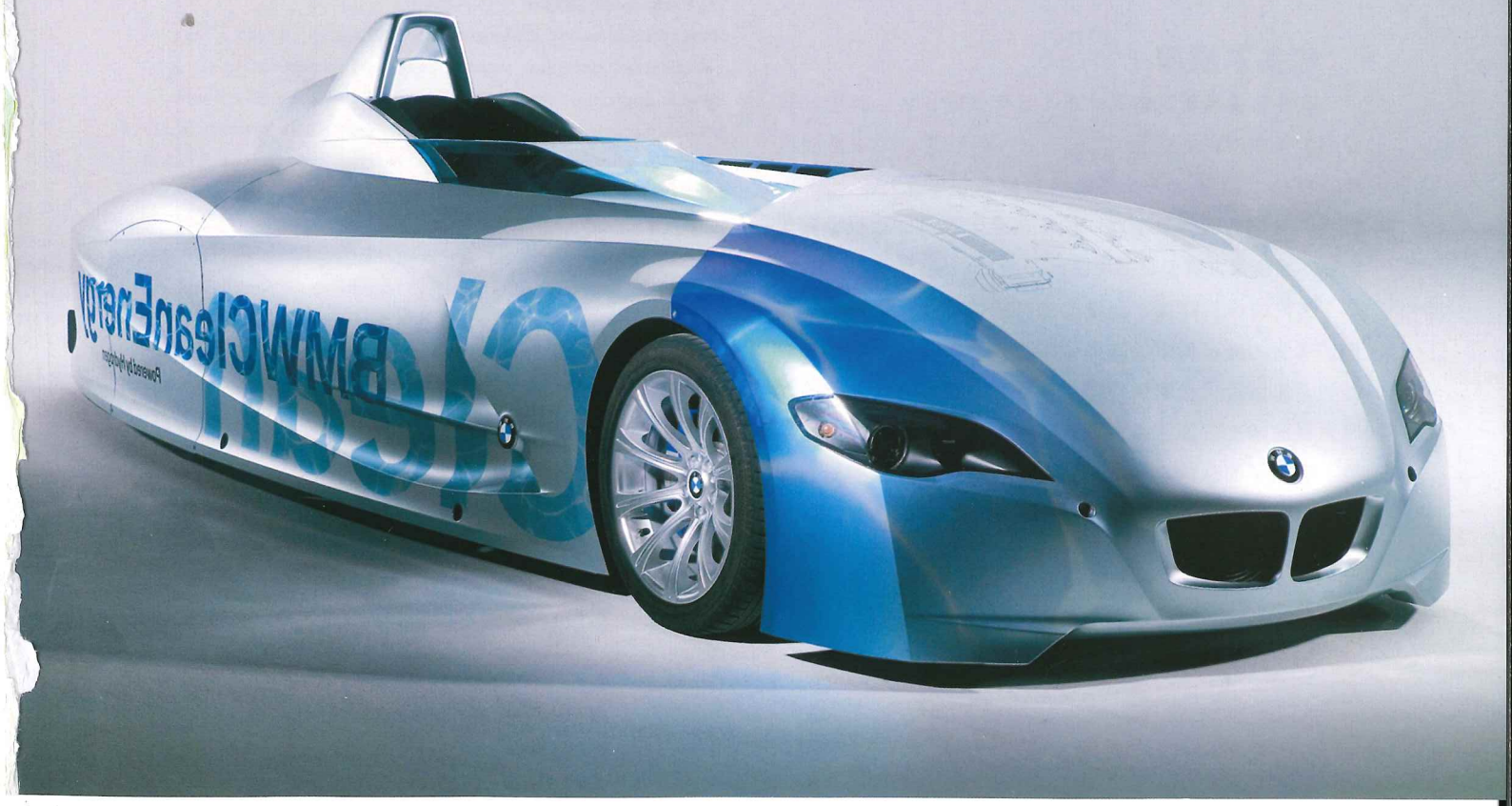


温州南鹿列岛 绿色风光独好

WENZHOU NANJI ISLANDS GREEN SCENERY IS GOOD OVER HERE

文/毛凌云 Written by Mao Lingyun

从平阳县鳌江码头出发，乘着荡漾的碧波，跟着成群的海鸟，去东南方向约30海里，就到南鹿列岛，这里绿色发光独好。

名头不简单

南鹿岛隶属浙江省温州市，远离大陆，特色鲜明，被评为我国最美的十大海岛之一。1990年9月，经国务院批准，成为我国首批五个国家级自然保护区之一；1998年12月，又成为我国目前唯一纳入联合国教科文组织世界生物圈网络的海洋类型自然保护区。

优美的自然环境，和谐的生态结构，不仅为南鹿岛创造了可观的经济效益，也为他们提供了可持续发展的能源动力。给世世代代靠山吃山、靠海吃海从事渔业生产的渔民发展旅游业创造了良好的条件。游客慕名而来，络绎不绝，尝到了甜头的南鹿岛人，为了保护生态环境和资源优势，保障当地居民生活及旅游业的发展，摒弃了传统以柴油为主的能源结构，大力发展风能、太阳能、海洋能等绿色清洁能源。

Starting from Pingyang county river wharf, ridding the rippling blue waves, with crowds of seabirds, going bout 30 miles to the southeast, and then will be the Nanij Islands, good green scenery is good over here.

Lts Name is Not Simple

Nanji Island is belong to Wenzhou city of Zhejiang province, away from the mainland, distinctive characteristics, was named one of ten most beautiful islands in China.In September of 1990, approved by the state council, became one of the first five national nature reserves in our country;In December of 1998, has become the only included in UNESCO's world biosphere network type of Marine nature reserves in our country at present.

Beautiful natural environment, the harmonious ecological structure, it is not only create considerable economic benefits for the Nanji Island, but also provide energy for the sustainable development of power motion. Creating good conditions for the fishermen from generation to generation to communities depend, take advantage of local resources to develop tourism .An endless stream of tourists, tasting the sweets of local people from Nanji Island, in order to protect the ecological environment and resource advantage, ensure the local residents' life and the development of tourism, abandoned the traditional mainly diesel energy structure, vigorously to develop the green clean energy such as wind power and solar energy, oceanic energy.

海上生物园

每年七八月夏天，是南麂岛最佳的旅游季节。台湾暖流与江浙岸流交汇和交替消涨，形成海区内特有的海浪，轻柔的亚热带海洋季风……给这座小岛增添了独特的魅力。海水碧绿清澈，海风清润和煦，潮起时波涛澎湃，潮落时礁石嶙峋。暖阳如织，游人似梭，在海滩上嬉戏玩耍，在渔家屋品尝海鲜，顿生一种乐不思蜀的感觉。

南麂岛生物景观丰富，自然生态系统保存良好：初步探明贝类403种，其中19种为国内首次记录；藻类174种，其中黑叶马尾藻为世界海洋藻类的新种，贝藻类种数约占全国的29%以上，居全国之首，拥有“贝藻王国”之称，是我国近海贝藻类的一个重要基因库。

游人到了南麂岛港口，下了轮渡后要去的第一个目的地，就是岛上著名的大沙岙。长800米、宽600米的大沙岙，全是又细又软的贝壳沙。这种贝壳沙不仅是国内唯一，在国外也极为罕见。

游人到列岛中的大擂岛，满山遍野的水仙格外壮观，花开时节，香气扑鼻；主岛上的三盘尾天然草坪碧绿如茵，人入其内，仿佛到了仙境。南麂岛还是郑成功收复台湾的练兵场，至今还留有摩崖题刻等遗迹多处。

小岛风景怡人，物产丰富，但是远离大陆，能源供应受制颇多，并掣肘当地环境保护和经济发展。

落后的能源

南麂岛远离大陆，常住人口只有2000人左右。长期以来，从岛外运来的柴油成为南麂岛主要的能源。柴油不仅支持着岛上的电力供应，也驱动着岛上为数不多的机动车辆。

大陆的电无法送到岛上，就建设独立电网。1999年10月1日以前，仅靠柴油机组供电。不仅限时供电，而且电压不稳，仅能维持照明，只有三四小时有电，居民生产、生活非常不便。之后，增加了柴油发电机组，实现了几代人盼望已久的夙愿——24小时正常供电。

43岁的吴高明，他就将自己经营海鲜大排挡的成功归结为南麂岛能源史上这次重要的跨越。连续供电，冰箱才有了用武之地，新鲜菜蔬肉类能够冷藏保鲜，这让岛上的旅游餐饮业有了发展的可能。然而，尽管实现了24小时连续供电，但夏季旅游高峰，岛上游人增多，电力供应依然紧张。不论是宾馆、山庄，还是农家乐，为了降低用电负荷，仍不能使用空调。

Marine Biological Garden

In July of each year in the summer, is the best tourist season in Nanji Island. Taiwan warm current and Jiangsu and Zhejiang coast flow convergence and evening alternately, to form the sea area special waves, soft subtropical Marine monsoon...Adding unique charming to the island.When the green water, refrigerant vernal wind, tide waves surging, reef rocky at low tide.Warming sunshine, visitors like shuttle are playing on the beach, it is a pleasure feeling to eat seafood in the fishermen's house.

The biological landscape in Nanji Island is rich, rich natural ecological system in good condition: preliminary proven 403 species of shellfish, including 19 species are the first records in domestic,174 species of algae, including black sargasso as the world's Marine algae species, breeding species accounted for about 29% in the country, it is the first place in the country, named as “the Kingdom of Shellfish and Algae”, it is an important gene pool of our country's offshore as well.

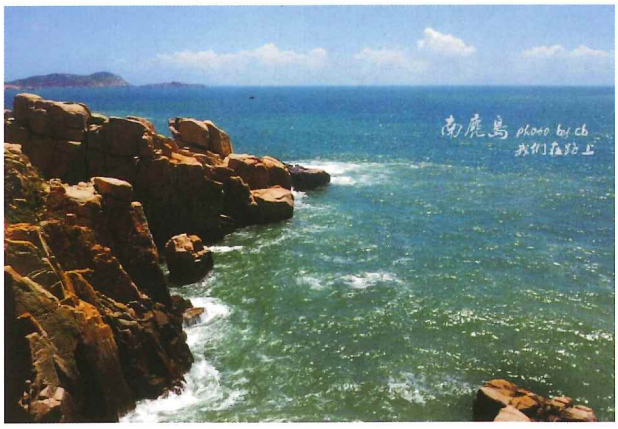
After visitors in the Nanji Island , the first next destination, is the island's famous big sand openmindedness. It is 800 meters long, 600 meters wide. The big sand openmindedness is full of thin, soft shell sands.The shell is not only unique in the domestic, but also extremely rare in a foreign country.

Visitors come to the Dalei Island of the islands, starts from the narcissus, particularly spectacular flowering season, feeling a sharp aroma;The main island of the three tail grass green carpet, people come into the inside, as if into the wonderland.Nanji Island or parade ground of Taiwan which was recaptured by Zheng chenggong , there still cliff inscribed copies and other relics in various places.

The scenery in the island is beautiful, rich products, but away from the mainland, the energy supply is quite limit, and examing the local environmental protection and economic development.

The Lag Behind Energy

Nanji Island is far from the mainland, the population of permanent residents is only about 2000 people. For a long time, diesel was came g from the outside becomes the main energy of Nanji Island.Diesel is not only support the island's power supply, but also drives the few motor vehicles on the island.



南麂岛整个居民用电和商业用电仅依靠一个10千伏的独立小电网——南麂柴油发电站。发电站只有4台柴油发电机组，24小时轮流工作。能源结构单一，发电效率极低，发电成本居高不下。　不仅如此，遇上台风，柴油断供，只好停电；柴油发电机屡出故障，则部分渔民无电可用。柴油发电机持续不断的轰鸣、翻卷冒出的黑烟，也与美丽海岛的形象极不相符。

如何满足岛上不断增长的电力需求，同时保护好海岛的生态环境？靠海吃海的南麂岛人，开始从海上、从自然要能源。

绿色微电网

从自然要能源，就要寻找一个以可再生能源利用为主的海岛能源供给方案，这是解决海岛可持续发展、建设生态海岛的关键。这样，以新能源为主的南麂岛微电网系统应运而生。

浙江省电力公司电力试验研究院与温州平阳电力有限责任公司合作，根据海岛的自然条件，在南麂岛建设风能、太阳能、海洋能、柴油发电和蓄电池储能相结合的风光柴储“分布式发电”综合系统。这一系统与海岛电网输配系统合二为一，集成为一个以新能源为主的微电网系统。

充分考察南麂岛的自然条件，岛上海风强劲，四周海浪不绝，利用风能和海洋能发电是方案的首选，晴天阳光充足，太阳能发电成为第一选择……南麂岛微电网系统涵盖了风能、太阳能和海洋能：12台100千瓦风力发电机组、1000千瓦光伏发电系统、30~50千瓦波浪能发电系统。

Electricity cannot be sent to the island from the mainland, then to build the independent power grid. Before October 1st of 1999, only rely on diesel to make the power supply .Not only limit the power supply and voltage instability, only can keep the lights on, and only lasts for three or four hours, it is very inconvenient for residents production and daily life. And then increased the diesel generator sets, to achieve the long-awaited dream of several generations, the normal power supply is 24 hours a day.。

The 43 years old Wu Gao-ming, he has made his own running seafood large stand successfully come down to this important crossing in the history of the Nanji Island energy.Continuous power supply, the refrigerator is operating, fresh vegetables and meat can refrigerate fresh, it makes possible for the island tourism industry development.However, despite the 24 hours of continuous power supply, but the summer travel peak and visitors increased in the island, the electricity supply remains tight.Whether the hotel, villa, or measures, in order to reduce the electricity load, it is still can't use air conditioning.

The residents and business electricity in Nanji Island are only rely on a 10 kv electricity utilization of independent small grid – Nanji power station.Power station has only 4 sets of diesel generator sets, take turns to work for 24 hours a day. Single energy structure, very low efficiency, high power costs.Not only like that, typhoon, diesel outages, had a power outage;Diesel generators are frequently out of order, the part of the fishermen can not use electricity.Diesel generator constant roar, folding of black smoke, also highly inconsistent with the beautiful island imagine.

How to meet the growing demand for electricity on the island, at the same time to protect the ecological environment of the island? The Nanji residents near the sea are sicking the energy starting from nature and sea.

Green Micro Crid

Seeking energy from natural, so then need to look for a renewable energy utilization energy supply scheme for the island , it is the key to solve the sustainable development of the island, to the construct the ecological island. Therefore, the new energy of micro grid system has been made in Nanji Island.

Zhejiang electric power test and research institute has cooperated with Wenzhou Pingyang electric co., LTD., according to the natural condition of the island, to construct wind energy, solar energy, oceanic energy, the beautiful scenery of the diesel generator and battery energy storage combined wood store "distributed generation" integrated systems.This system has been united power distribution system integration in the island. integrate for a micro grid system and the new energy as the main energy.

With well research of the natural conditions in Nanji Island, the strong wind on the island, surrounded by the waves, using wind and power generation is the first selection of schemes, sunny sunshine, solar power had become the first choice... micro grid system covers the wind, solar and ocean energy in Nanji Island: 12 sets of 100 MW wind power generators, 1000 kw photovoltaic system, 30 ~ 50 kw wave energy power generation system.

这一套风光柴储系统的最大特点，就是充分利用海岛丰富的太阳能和风能资源，低利用传统的柴油发电，不产生大气、液体、固体废物等污染物，也不会产生大的噪声污染，做到低碳、低排放。

电动车储能

南麂岛微电网示范工程从实际出发，面对风、光等清洁能源具有间歇性的特点，不刮风、没太阳的日子，岛内用电怎么办？岛上微电网仍然留有柴油发电机备用。

更为重要的是，将安装先进的储能系统。储能系统中的蓄电池可以储存1000千瓦电能，发电高峰时储电，电力供应不足时可以稳定供电。

尤为特别的是，还引入电动汽车作为储能系统的一部分，将岛上现有的燃油汽车全部换成电动汽车，让可再生能源得到充分利用，汽车尾气污染得到有效控制，减少了二氧化碳排放，节约了资源，保护了环境。

南麂岛微电网使用绿色电能，是对南麂岛能源供应的补充。岛上居民和商户不再担心用电限制，发电企业减轻了环境保护压力，以较少的资金、资源和环境代价，换取较高的整体投资效益和能源转换效率，保护了生态环境，促进了经济的持续快速发展。

南麂岛从无电到有电的历史，高高竖起的一座座发电风机，紧密相连的一排排光伏发电板，使南麂岛人对未来的美好生活，信心百倍，豪情满怀。

The biggest characteristic of Scenery wood storage system, is to make full use of the rich solar energy and wind energy resources in the island, low using traditional diesel generator, do not produce air, liquid, solid waste and other pollutants, it wouldn't make a big noise pollution, low carbon and low emission.

Electric Vehicle Energy Storage

Nanji Island micro grid demonstration project was carried out from reality, in the face of clean energy such as wind, light have the characteristics of intermittent, How about the using electricity in island if there is no wind, and no sun in a day? Micro power grid on the island still have standby diesel generator.

More importantly, it will install the advanced energy storage system.The battery energy storage system can store 1000 kw power, storage power peaks, when there is lack of the power supply it can also keep stable power supply.

Especially in particular, it has also introduced the electric vehicle as part of the energy storage system, change all existing fuel cars into electric vehicles on the island, make full use of the renewable energy, effective control of automobile exhaust pollution, reduce co2 emissions, to save resources and protect the environment.

Nanji Island micro grid using green energy, is the energy supply complement to the island.Residents and business users will not worry about power limits any longer, power generation enterprises to reduce the pressure of environmental protection, with less capital, resources and environmental costs, in exchange for higher overall investment performance and energy conversion efficiency, protect the ecological environment, promote the sustained and rapid development of the economy.

Nanji Island running from without electricity to the history of electricity, setting up in the past generation fans, closely linked to the rows of photovoltaic panels, which had made the Nanji people have a better life for the future, confidence, and be full of pride and enthusiasm