东润环能
East Environment Energy

China Renewable Energy Development and Power Reform

June 2015, EEE

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01 Development and utilization of renewable energy in China

02 China power market reform and its influence

03 China Power Technology and product application

- Power Forecast System
- Load Forecast System
- Grid Integration Management System
- Electric Power Exchange System

China’s rich renewable energy-layout of wind and light resources

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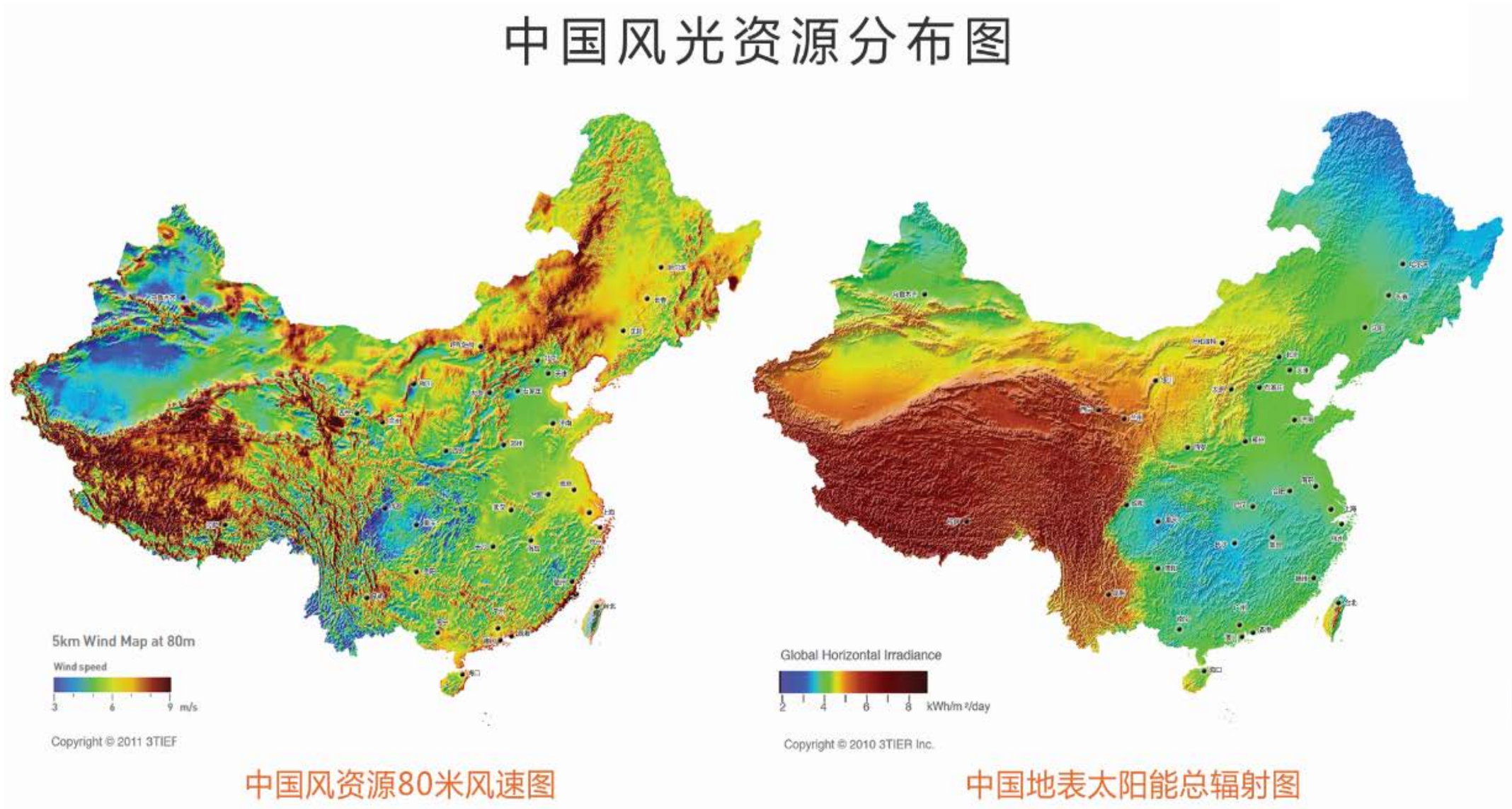

中国风资源80米风速图

中国地表太阳能总辐射图

China’s Development of Renewable Energy Resources

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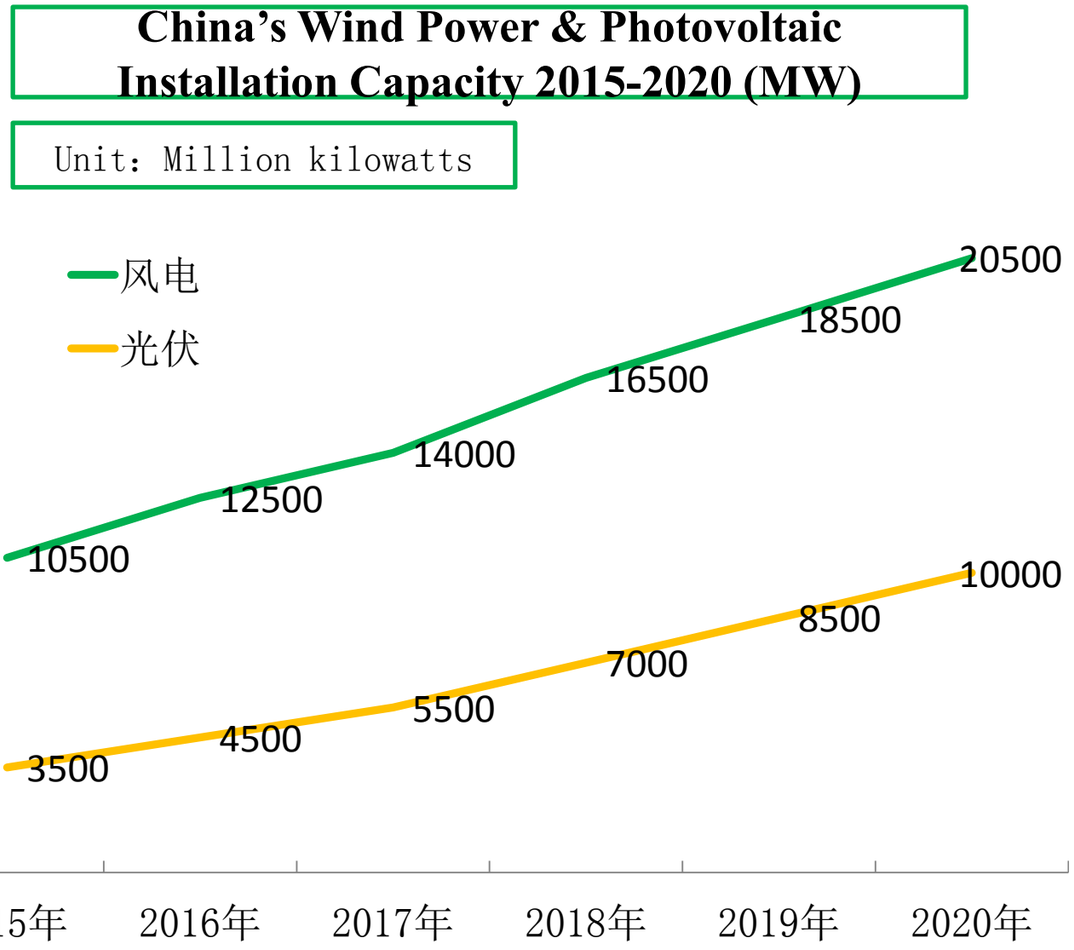
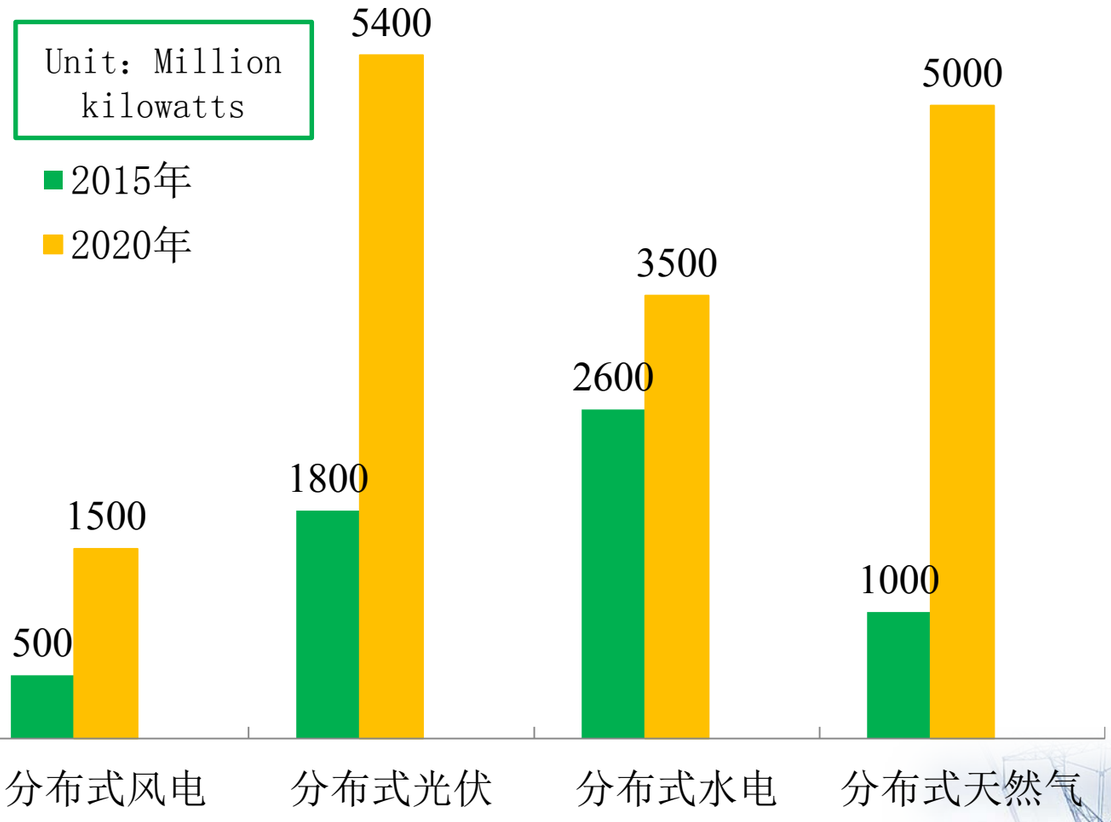
China’s Wind Power & Photovoltaic Installation Capacity 2015-2020 (MW)

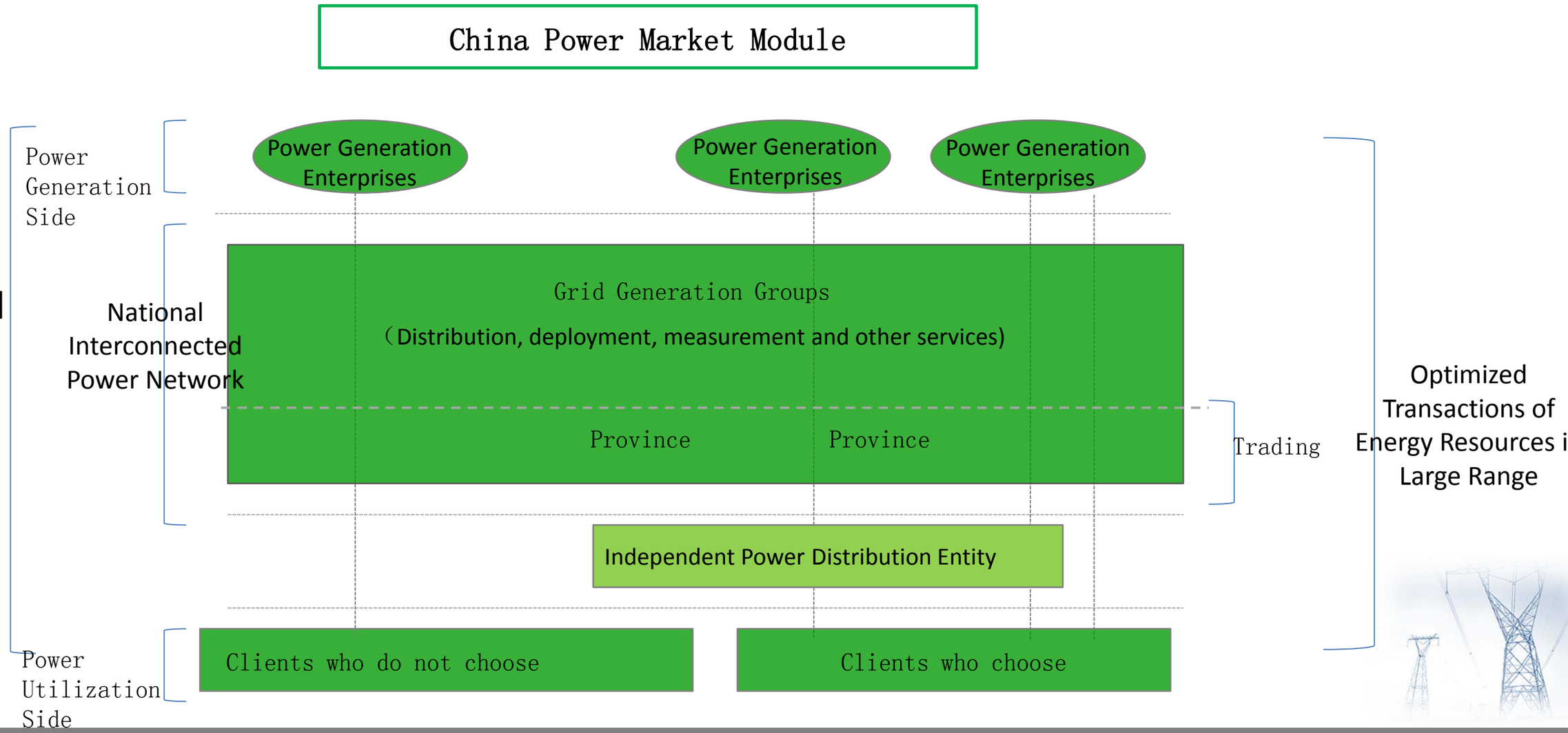


China’s Distributed Renewable Energy Generation Plan 2015-2020 (MW)



China Power Market Reform

- It separates power distribution and selling, allowing social capital to enter the selling part.



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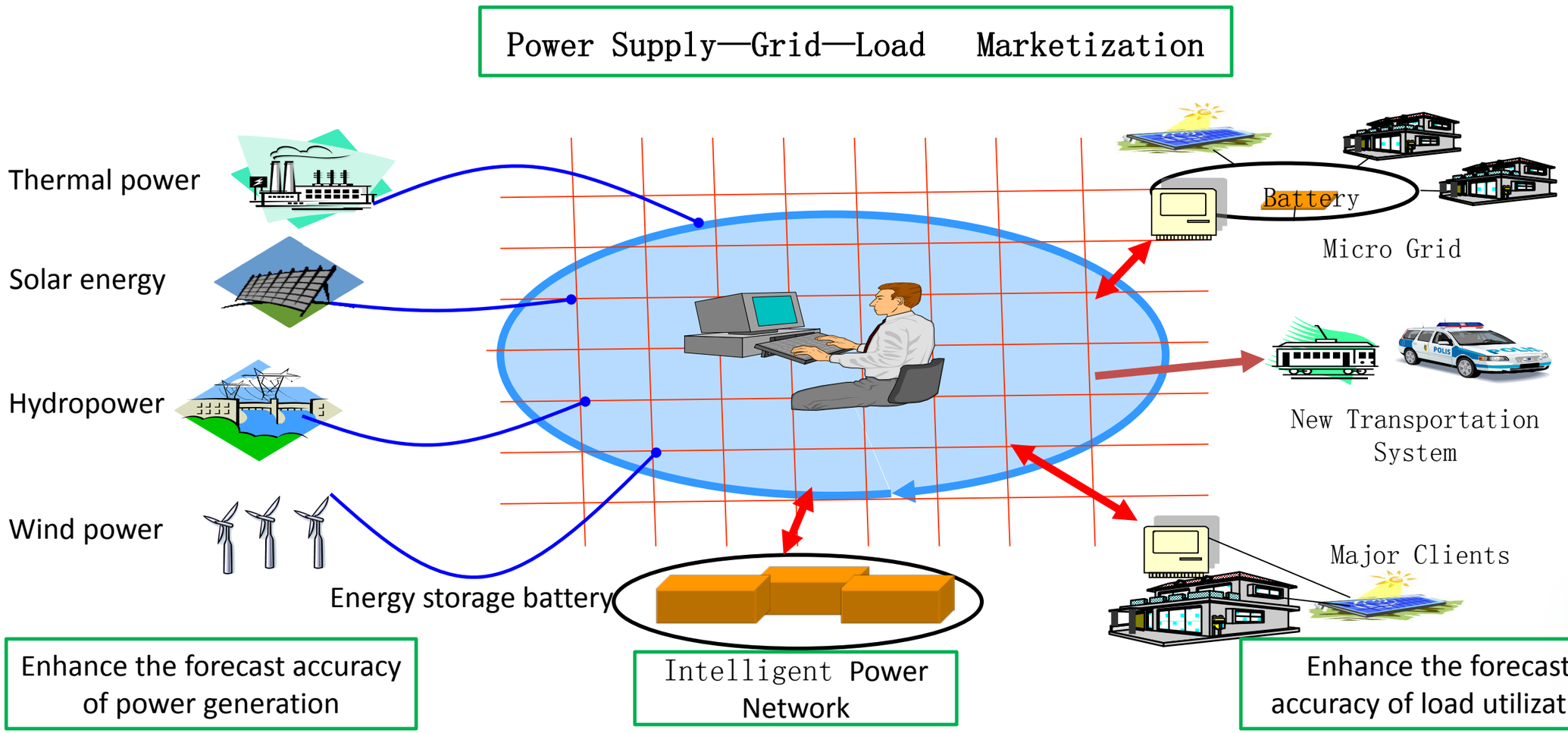
- The reform activates the electricity market positively by promoting the generation technology and enhancing the operation mode.



Technology——EEE Power Generation Forecast System

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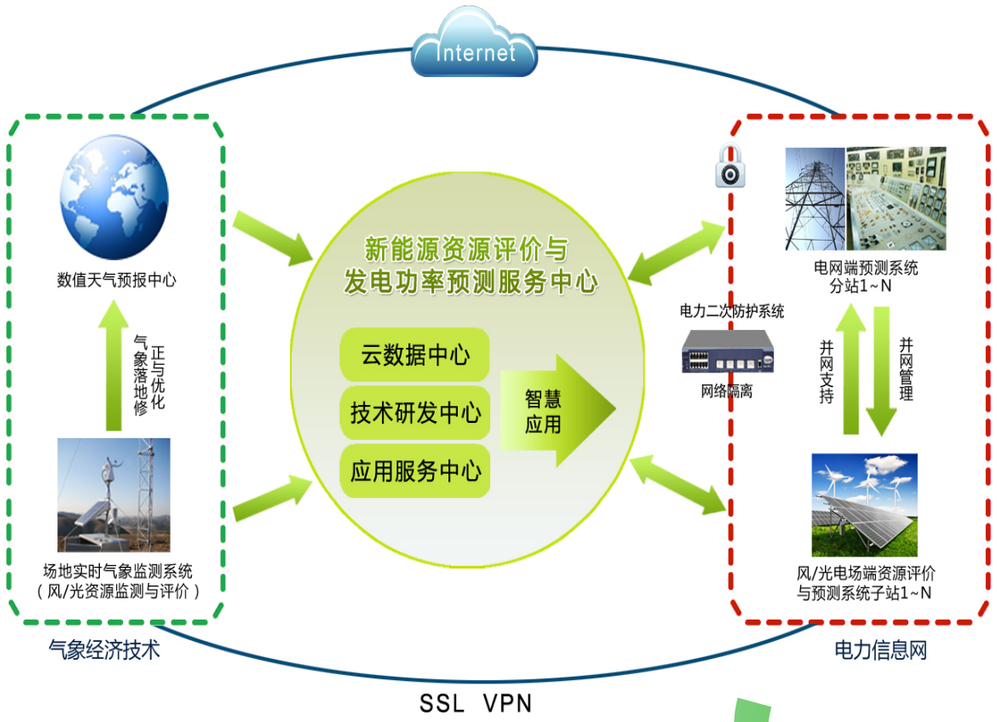
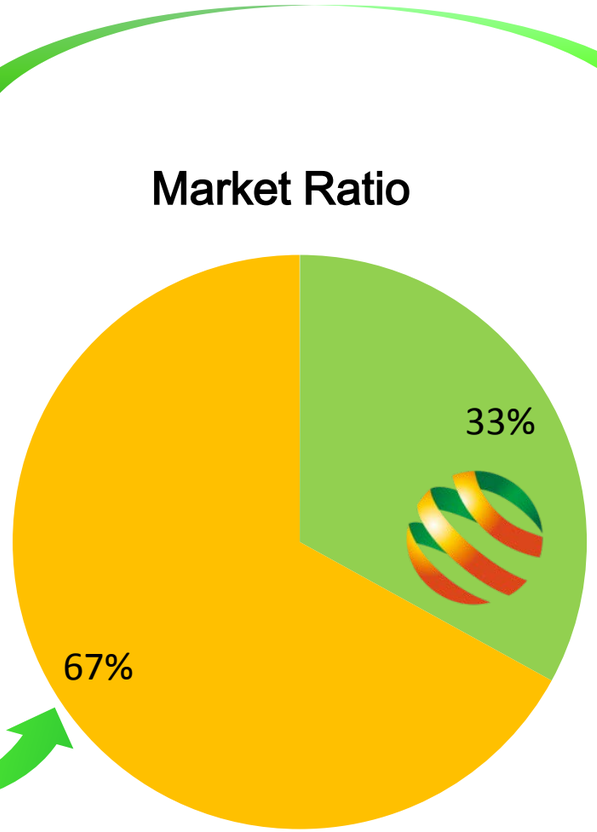
- The reform requires more precision of power generation forecast.



Data Center



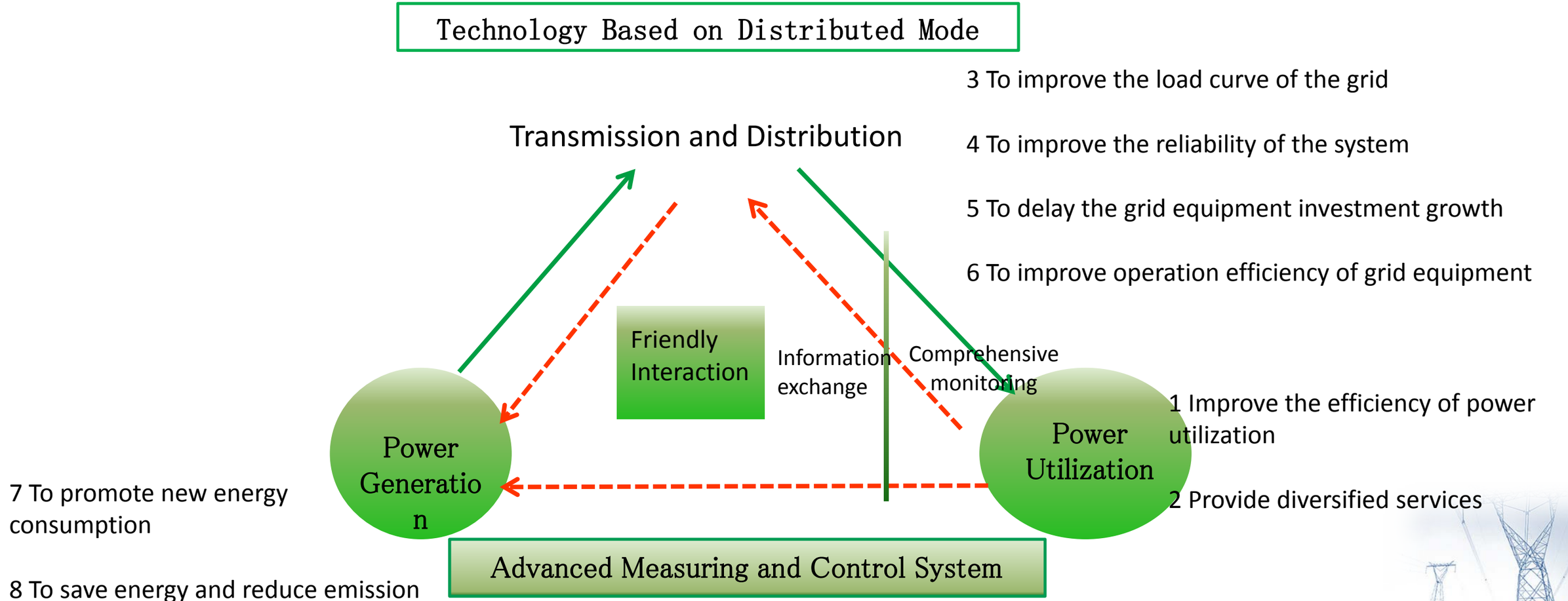
Functions

- Precisely predict the generation capacity
- Assist the power plants to make plans
- To provide data for load balance
- To provide data for transactions

No. 1 in China

Technology——Load Utilization Forecast System

- The reform requires more precision and timeliness of load utilization forecast system。



Technology——EEE Grid Integration Management System

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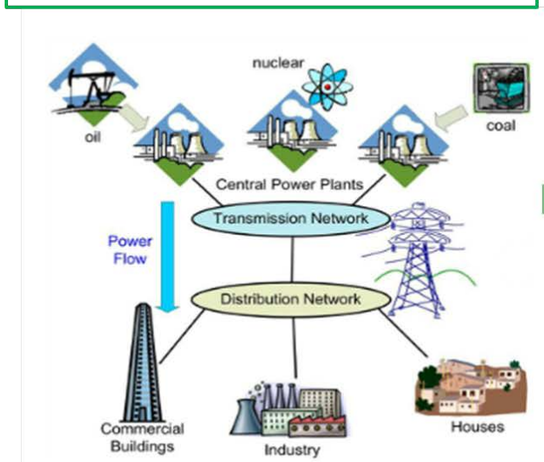
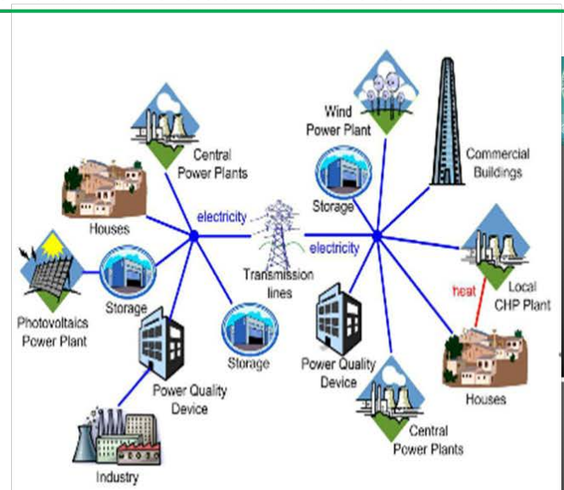
- The reform brings the new mode of integration of centralized supply and distributed supply to replace the old mode of centralized supply.

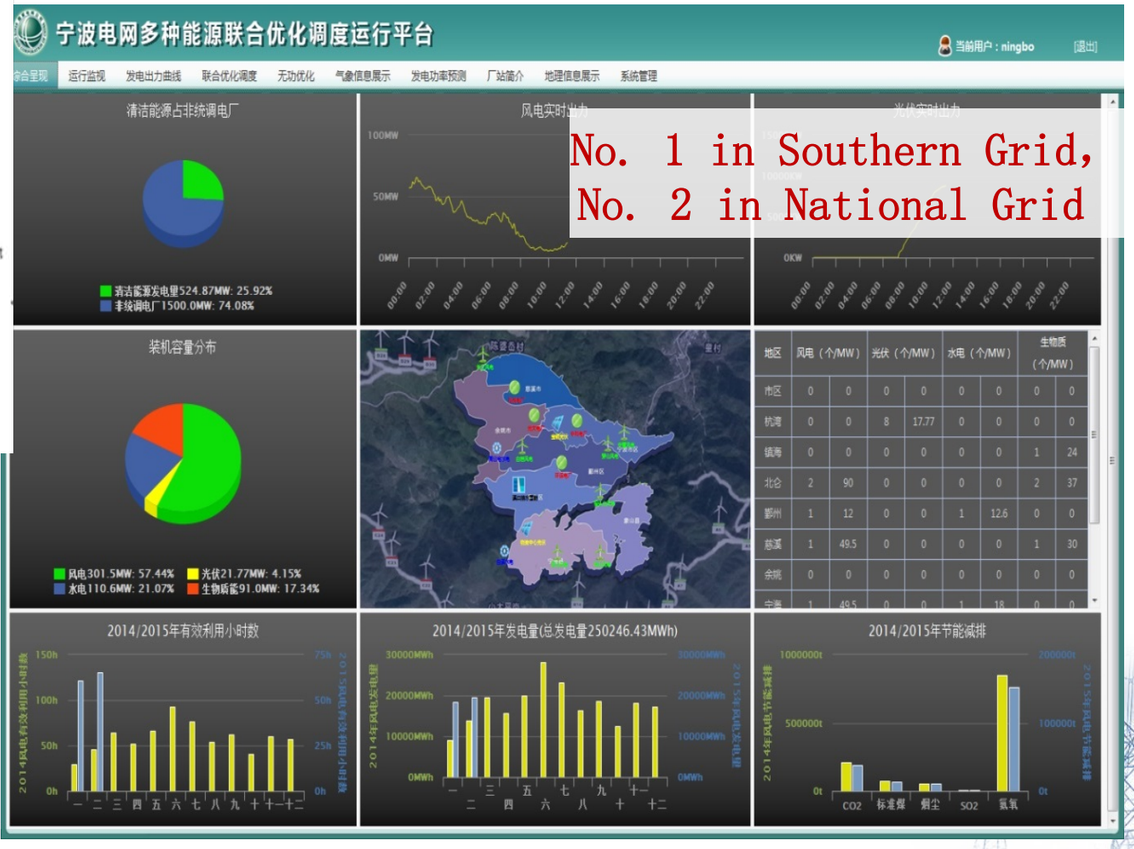
集中生产和供应模式



集中于分布式可再生能源综合利用模式



EEE Grid Integration Management System



It displays information of new energy power plants, weather, operation, power generation, energy-saving, emission reduction, benchmarking, industry policies and standards etc. with AGC / AVC automatic regulation and EMS system support.

Users can browse and query through the PC, mobile phone and other mobile terminals.

Technology——Electricity Transaction Platform

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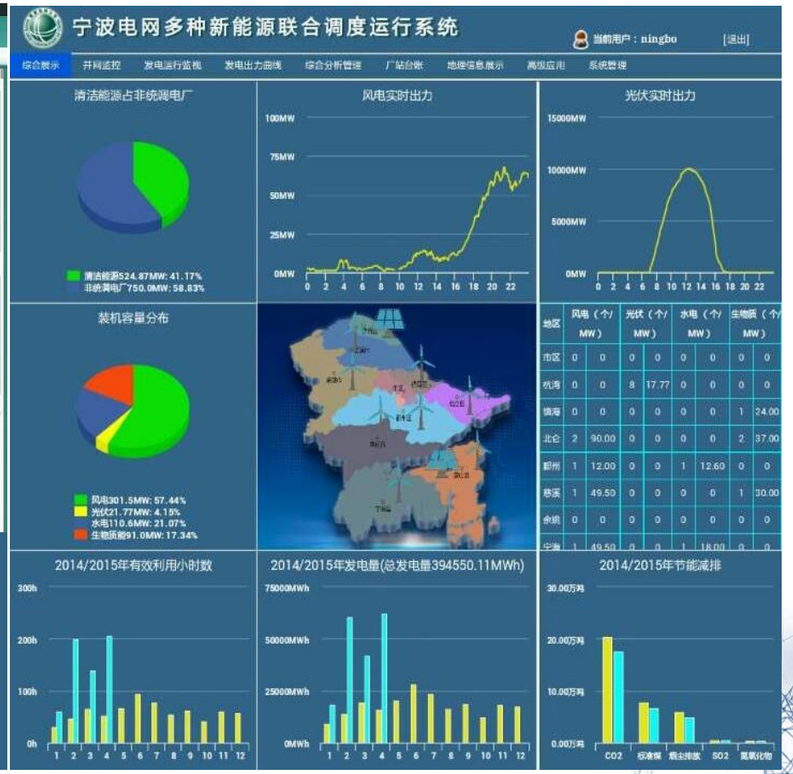
- The reform promotes the construction of electricity transaction platform and consumption of clean energy by application of power generation forecast technology, load forecast technology, price incentive strategy, demand side response mechanism.

Based on new energy scheduling system



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Dedicate intelligent energy, create a clean world!

——MISSION

EEE persists to achieve that "everyone enjoys the clean energy “ by all means.

Milestones

May, 2015

- Completed market making by Shen Wan, CITIC, and photovoltaic financing alliance; became vice chairman of the energy Internet alliance.

October, 2014

- Won Global new energy enterprise with potential Award; Achieved 110 million RMB revenue

July, 2014

- **Listed in the New 3rd Board**

December,2013

- **Reformed with shares**

May, 2012

- Singed a strategic agreement with National Meteorological Bureau

January, 2011

- Won national high-tech enterprise certification

August, 2010

- Won innovation fund from National Ministry of science and technology

June, 2009

- **6 persons, EEE established**

EEE Product Introduction

- We have five product departments including consultancy, new energy intelligent operation, forecast services, technology and equipment, and new energy portal.

New Energy Grid Integration Management System

Ranked No.1 in Southern Power Grid, No. 2 in National Grid !

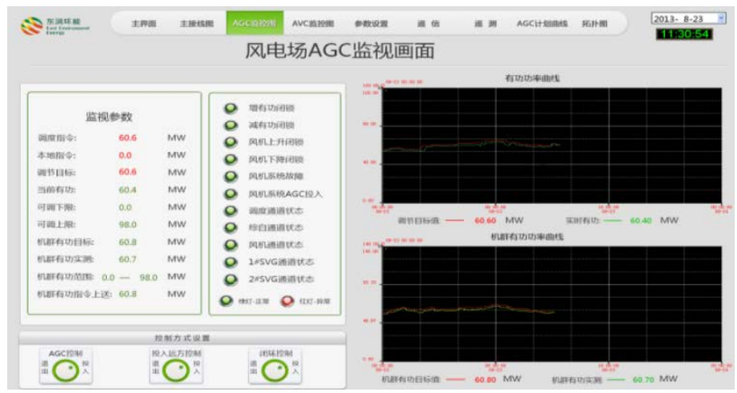
We have been well performing in National Grid and Southern Grid from 2010 covering regions of Northeast, Shandong, Hangzhou, Guangdong, Yunnan, Hainan, Zhuhai, Shantou and etc, with clamping effect.

New Energy Forecast System

Ranked No.1 in market !

We have obtained 600 projects. Each project has 25 year long income with a minimum yearly income of RMB 60000 as service fee.
Mass data acquisition and obvious long- tail effect.

AGC/AVC



Grid mandatory product, market leading!

Widely used in Qinghai, Ningxia, Gansu, Shandong, Shanxi, Inner Mongolia, Jiangsu, Yunnan, Xinjiang, Hunan, Anhui, Guizhou and other grid zone.

EEE Product Introduction

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- Technology and equipment department aims to establish a system to precisely identify and meet clients' demands with foresight.
- Consultancy department aims to guide local government to invest and develop new energy more efficiently.

New energy intelligent operation

New energy consultancy

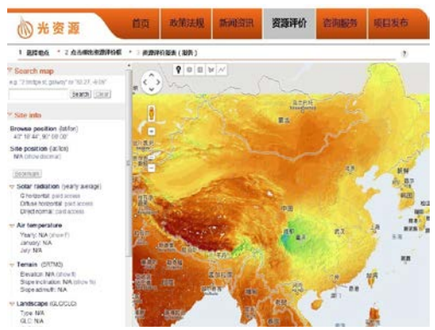
《十三五可再生能源规划》业务即将爆发

北京张家口申奥-能源结构调整规划

黑龙江依兰县可再生能源供热规

运维及装备电商平台

New energy intelligent operation



New energy portal - online resource assessment and meteorological service system

EEE Market Profile

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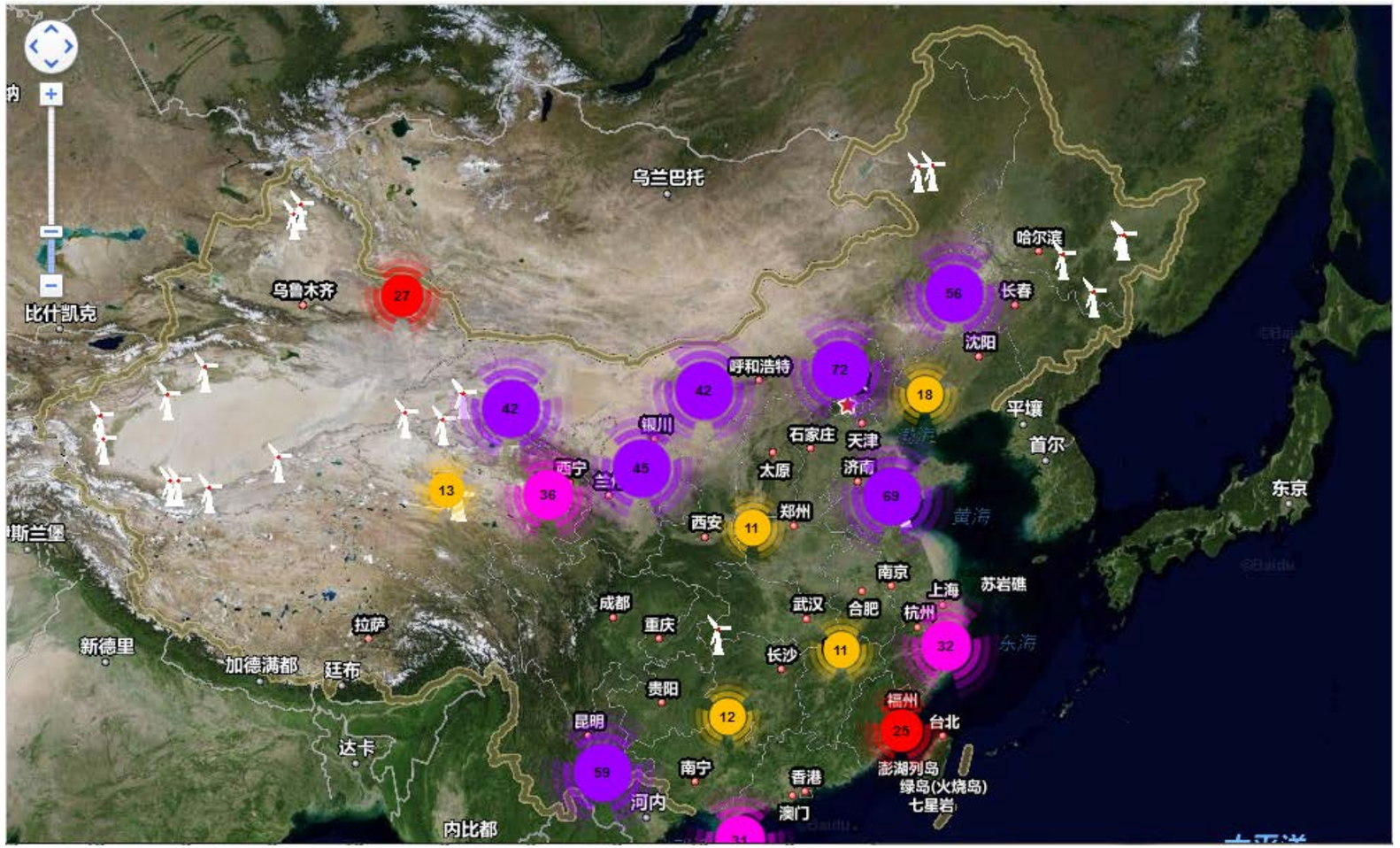
- We have been serving for more than 800 projects all over China.



We have built up a network throughout China's regions with rich new energy resources.

Northwest Region: Qinghai, Gansu, Ningxia, Liaoning, Jilin, Heilongjiang, Inner Mongolia, Hebei, Xinjiang

Middle East Region: Shandong, Jiangsu, Shanghai

Southern Region: Fujian, Guangdong, Yunnan, Hainan

EEE Clients

- We not only closely cooperate with China's five big and four small power generation groups, but also closely cooperate with major domestic and foreign financial institutions.

Grid Groups	国家电网 南方电网
Five Big Power Generation Groups	中国华电集团公司 CHINAHUADIANCORPORATION；中国大唐集团公司 China Datang Corporation；中国华能集团公司 CHINA HUANENG GROUP；国电电力；中电投集团
Central Energy Enterprises	中海油新能源；中广核风力；中国三峡新能源公司 China Three Gorges New Energy Co., Ltd.
Energy Enterprises of Key Areas	京能新能源；华能新能源；申能股份有限公司 SHENERGY COMPANY LIMITED
Government Organs	中国风能协会；中国气象局公共气象服务中心；国家可再生能源中心
Distributed Investment Enterprises	YINGLI SOLAR；SUNGROW 阳光电源；CHINT 正泰
Financial Institutions	国家开发银行 CHINA DEVELOPMENT BANK；招商银行 CHINA MERCHANTS BANK；中国银行 BANK OF CHINA；CHINA LIFE 中国人寿

EEE Cultures

- EEE is a happy, difference complementary , united team with dreams!

Dedicate intelligent energy, create a clean world!

——MISSION

We focus on client experience, social value, and external support improvement to achieve our vision and obtain success.

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THANKS!

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Email：http://www.eeechina.cn/

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中国可再生能源发展与电力改革

2015.6 北京
东润环能

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01 中国可再生能源发展及利用

02 中国电力市场改革及影响

03 中国电力技术及产品应用

- 发电功率预测系统
- 负荷用电预测系统
- 并网调度管理系统
- 电 力 交 易 系 统

中国可再生能源丰富

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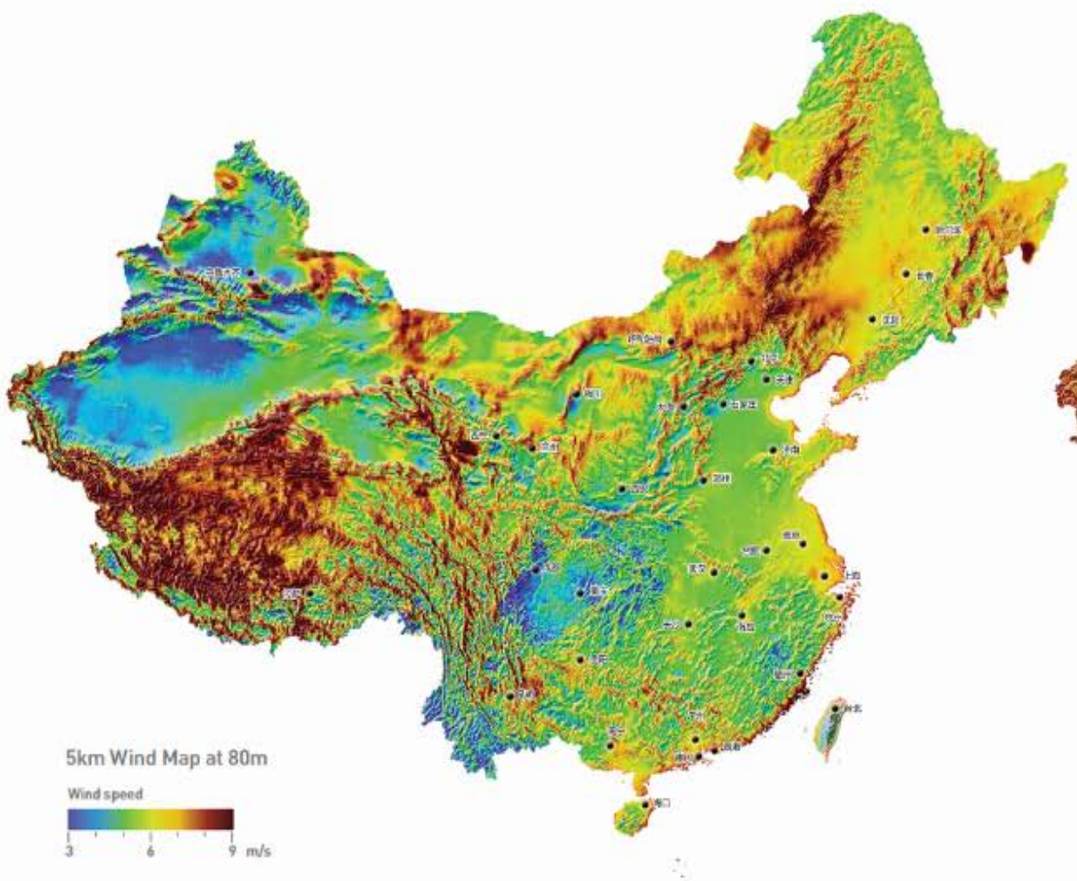
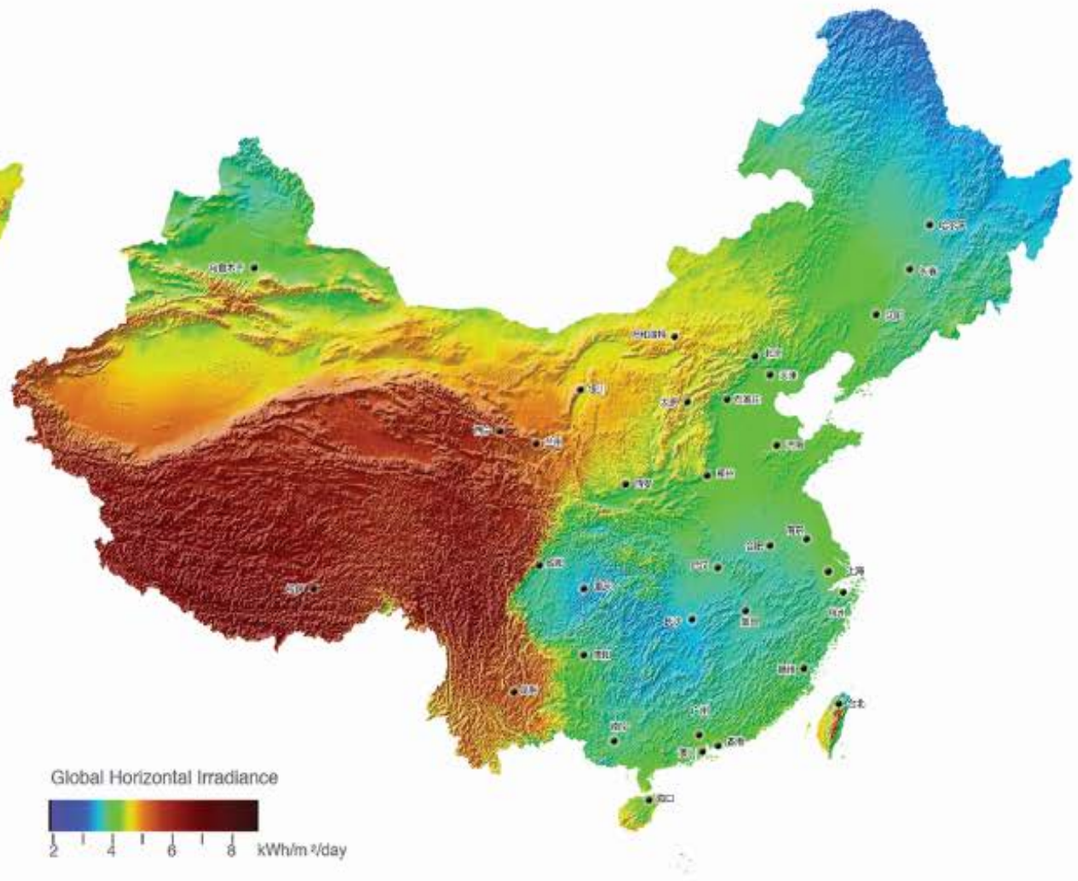
中国风光资源分布图



中国风资源80米风速图



中国地表太阳能总辐射图

中国可再生能源发展

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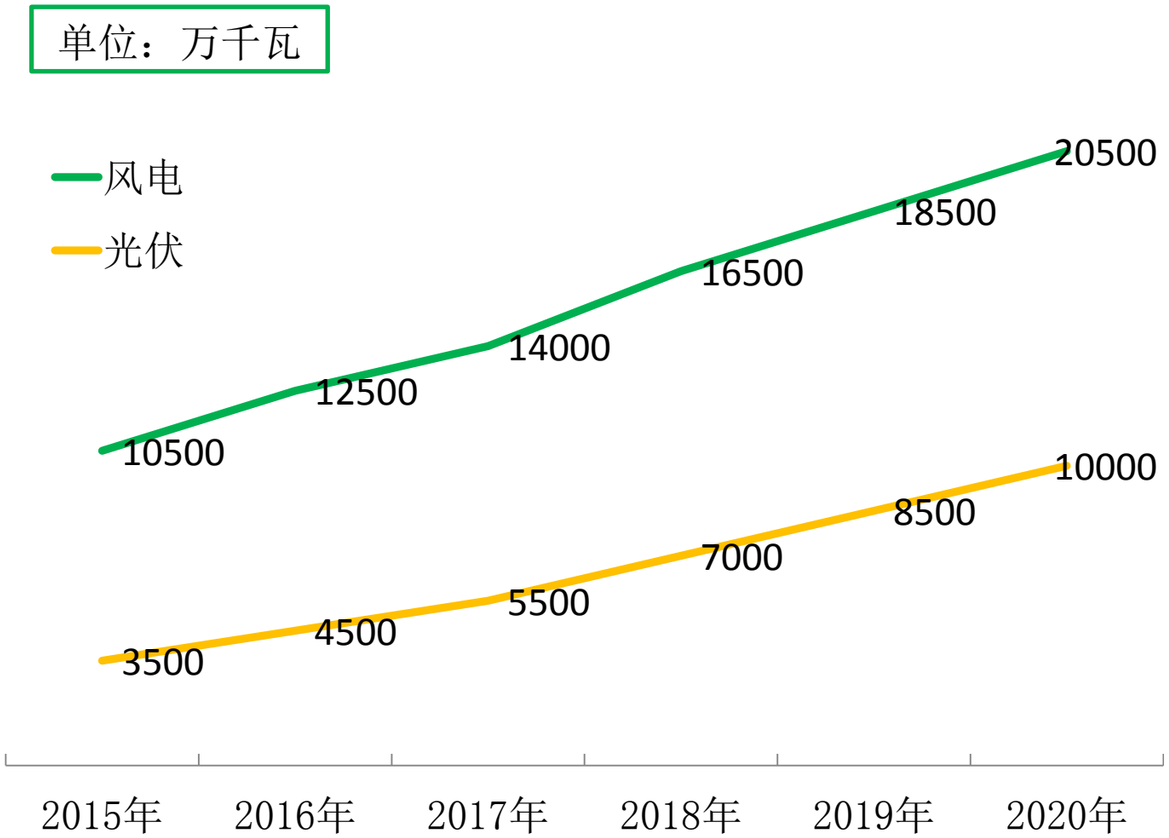
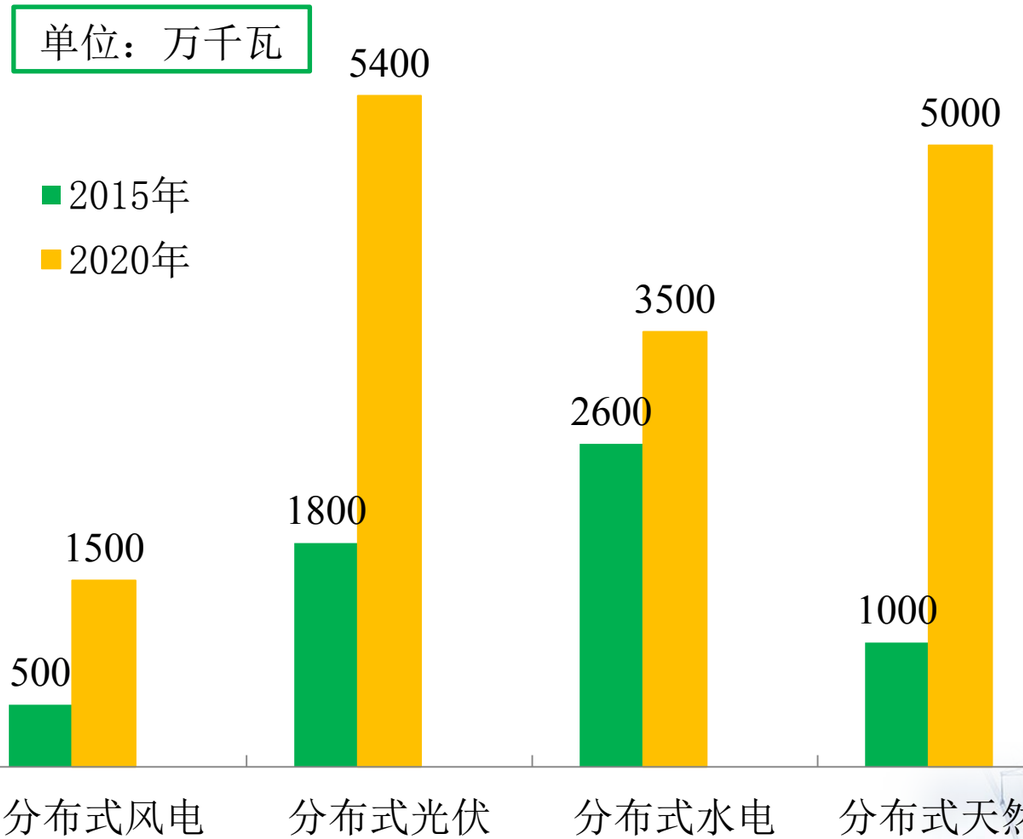
2015-2020年中国风电/光伏累计安装容量

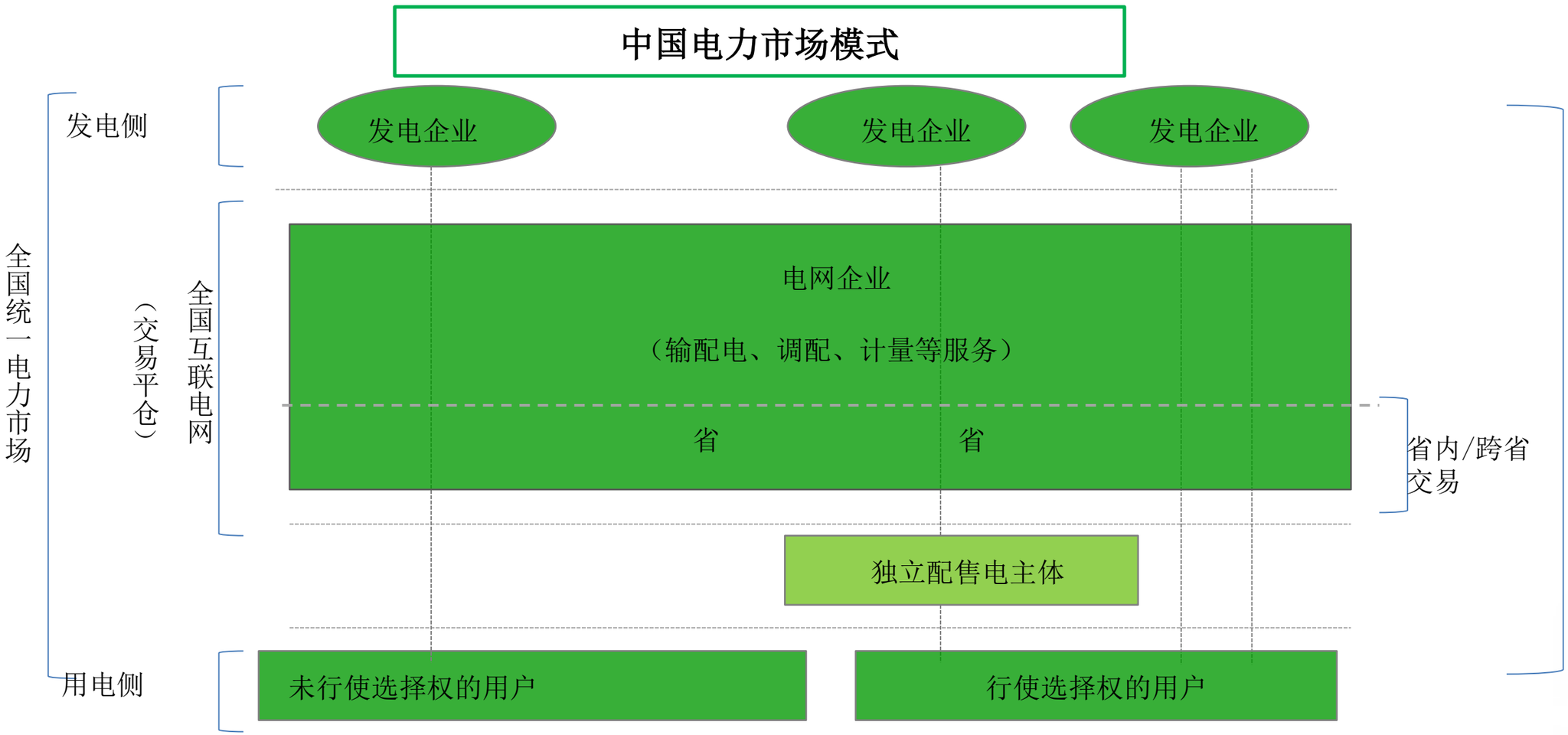


2015-2020年中国分布式可再生能源发电规划



中国电力市场改革

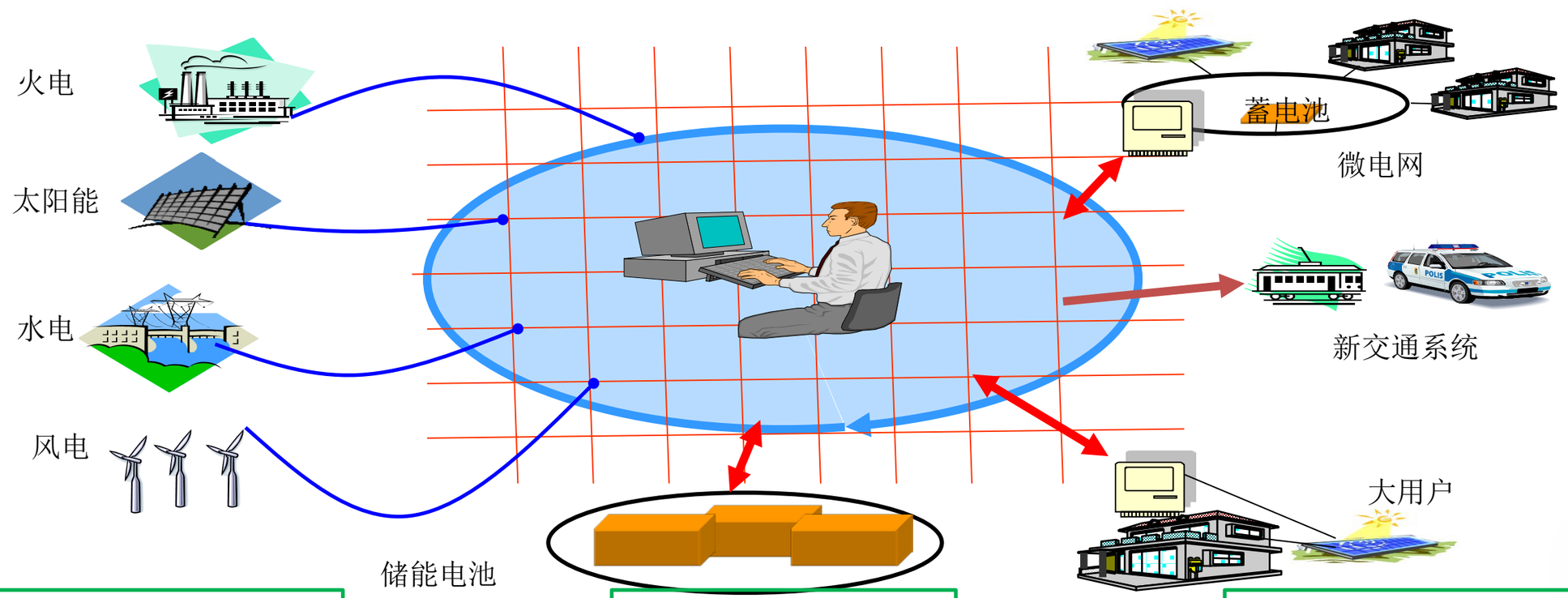
- “管中间放两侧”的电力改革方案，独立配电侧和售电侧，允许社会资本进入配售业务。



中国电力改革对可再生能源电力行业的影响

- 电力改革推进电力技术提升，驱动调度改革，改变电力市场运营模式，激活电力交易市场。

电源—电网—负荷 三端市场化



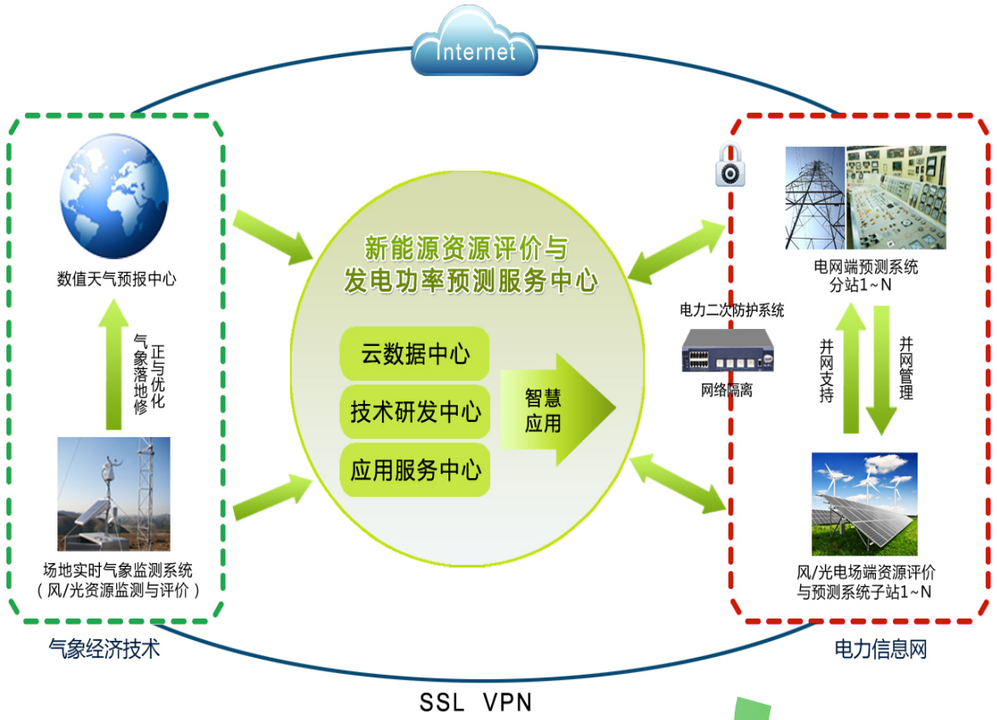
提高发电端发电量预测精度

电网智能化

提高负荷端用电预测精度

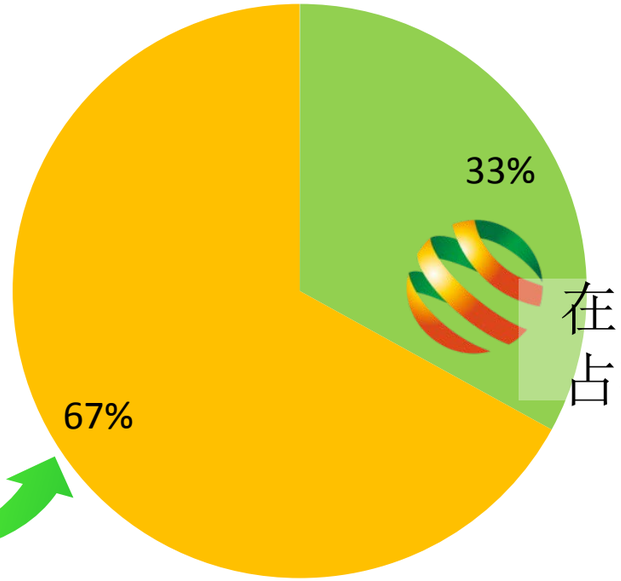
电力技术——发电功率预测系统

- 电力改革对发电端的发电功率预测提出更高的精度要求。



发电功率预测预报中心

EEE发电功率预测产品市场占有率



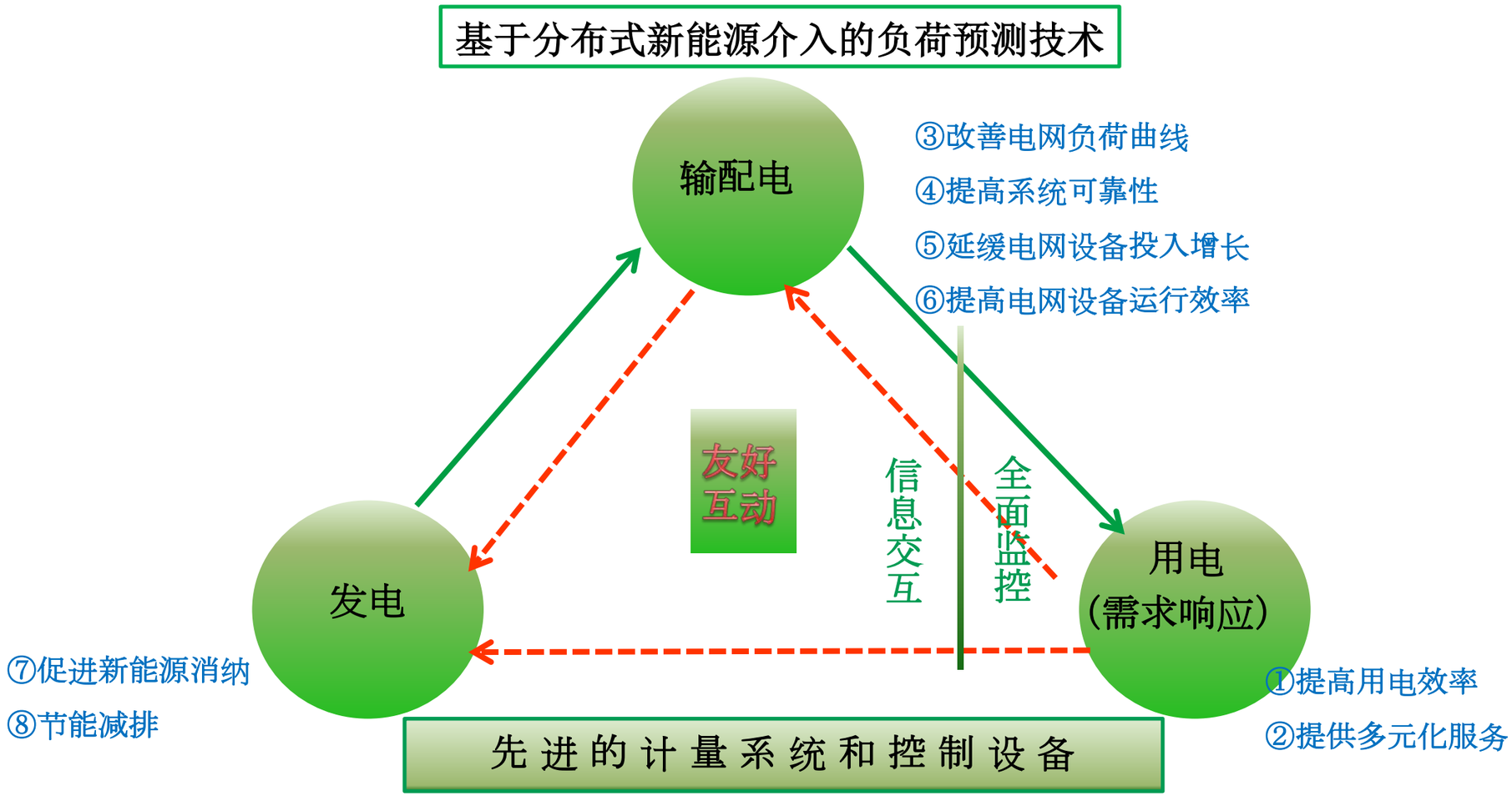
在中国市场
占有率第一

发电功率预测系统作用

- 准确预测发电量
- 协助电场制定发电计划
- 为平衡负荷提供参考依据
- 为电力交易提供参考依据

电力技术——负荷用电预测系统

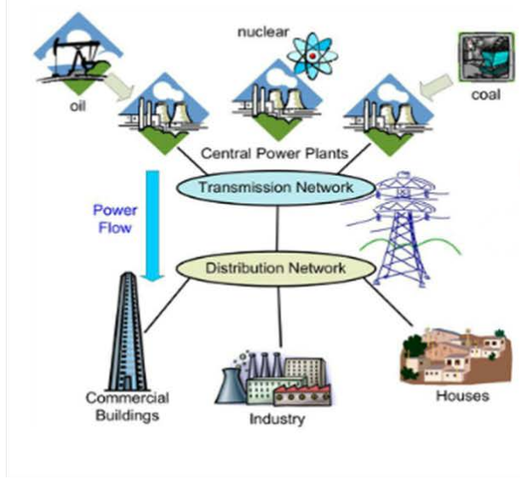
- 电力改革对负荷预测精度、及时性提出更高要求。



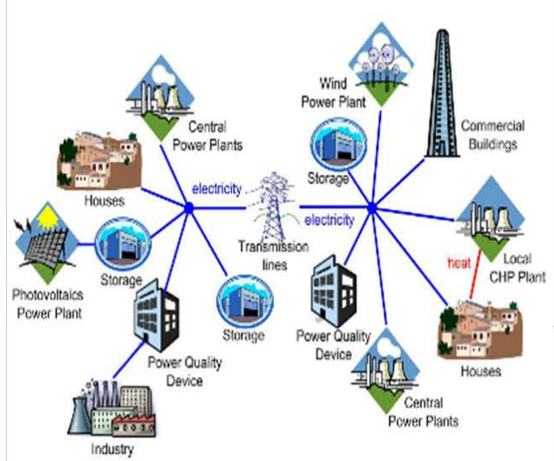
电力技术——并网调度系统

- 电力改革促使我国能源生产和供应方式将从集中式大规模生产为主的模式向“集中式供应与分布式可再生能源就地利用相结合”发展。

集中生产和供应模式



集中于分布式可再生能源综合利用模式



东润环能并网调度系统

南网第一，国网第二

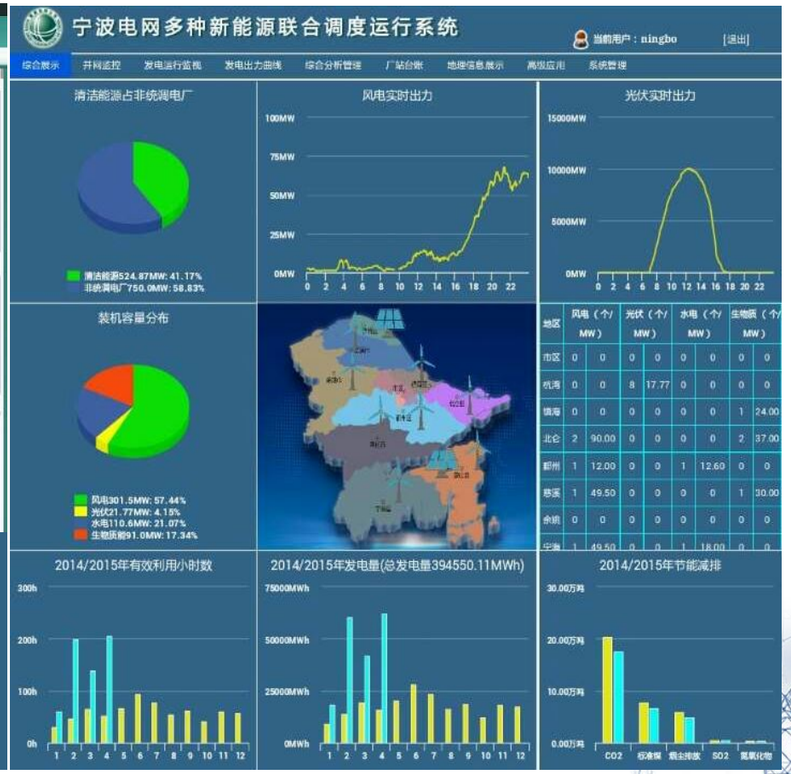
实现新能源电站信息、气象信息、运行信息、发电信息、节能减排、同业对标、政策标准等集中展示与发布服务，AGC/AVC自动调节，支持EMS系统调度。

用户可以通过PC电脑，手机等移动终端进行浏览及查询。

电力技术——电力交易平台

- 电力改革推进电力交易平台建设。应用发电功率预测技术、负荷预测技术、价格激励策略、需求侧响应机制促进清洁能源交易 。

Epower 电力交易平台—基于新能源调度管理



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奉献智慧能源，缔造清洁世界！

——公司使命

东润遵从“以德为本，孜孜以求”的基本行为理念，以“奉献智慧能源，缔造清洁世界!”为使命，为推动“人人享用清洁智慧能源”这一梦想，始终不渝！

公司发展历程

- **2015年5月** → ❖ **完成申万、中信建投做市，光伏投融资联盟、能源互联网联盟副理事长单位**
- **2014年** → ❖ 获得全球新能源企业发展潜力奖，公司256人，实现收入1.1亿元。
- **2014年** → ❖ **全国股转系统“新三板”挂牌**
- **2013年** → ❖ **东润环能股份改制成功**
- **2012年** → ❖ 国家气象局签署战略协议
- **2011年** → ❖ 获国家高新技术企业认证
- **2010年** → ❖ 获国家科技部创新基金支持
- **2009年6月** → ❖ **东润环能有限成立，6个人**

东润环能产品介绍

- 东润环能有五大产品部。咨询事业部、新能源智慧营运产品线、预测服务产品线、技术装备部、新能源门平台。

新能源并网调度管理系统

南方电网第一，国家电网第二！

2010年始国网、南网取得不菲业绩：东北、山东、杭州、广东、云南、海南、珠海、宁波、佛山等电网调度采用，卡位效应显著。

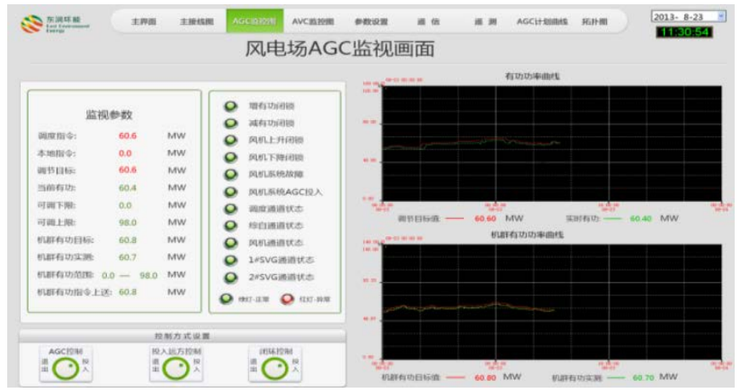
新能源发电功率预测预报系统

市场占有率与排名第一！

已获得600个项目，服务每年每项收入>6万元，25年长期收益；

海量数据获取，长尾效应显著！

有功/无功控制（AGC/AVC）



电网强制性产品，市场领先！

广泛应用于青海、宁夏、甘肃、山东、山西、内蒙、江苏、云南、新疆、湖南、安徽、贵州等电网区。

东润环能产品介绍

- 技术装备部旨在建立先知先觉的需求识别 与服务 满足系统。
- 规划与咨询旨在指导地方政府招商和合理发展新能源。

新能源远程智能管控信息系统

新能源规划与咨询服务

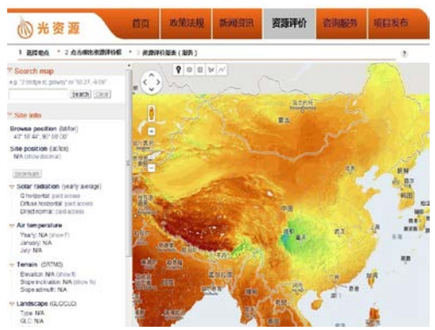
《十三五可再生能源规划》业务即将爆发

北京张家口申奥-能源结构调整规划

黑龙江依兰县可再生能源供热规

运维及装备电商平台

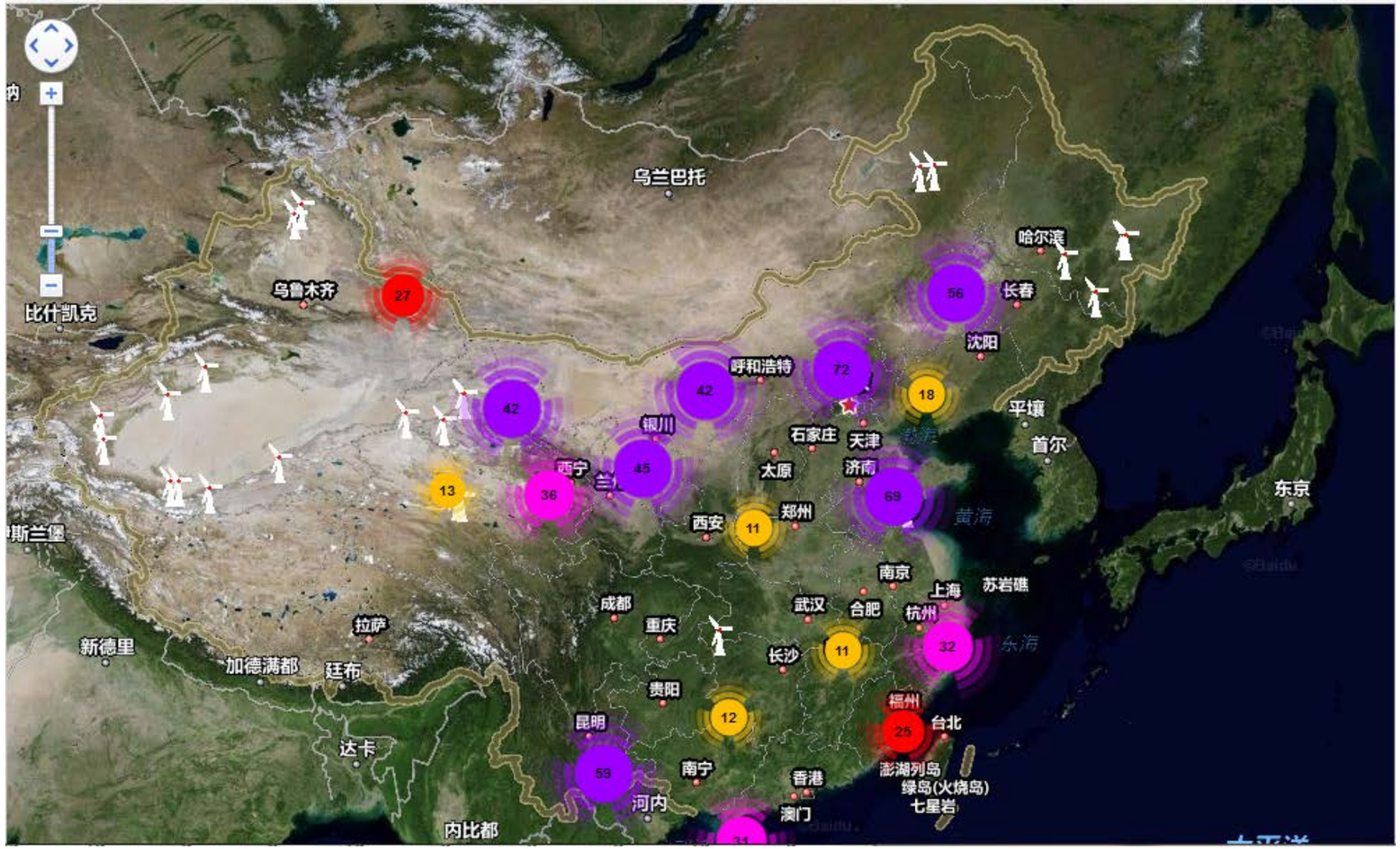
新能源运维产品线



新能源门网——在线资源评估与气象服务系统

东润环能市场分布情况

- 东润环能服务项目达800多个。



东润服务服务团队遍布中国新能源资源丰富区域。

西北地区：新疆、青海、甘肃、宁夏、辽宁、吉林、黑龙江、内蒙古、河北

中东地区：山东、江苏、上海

华南地区：福建、广东、云南、海南

东润环能客户群

- 东润环能不仅与中国五大四小发电集团合作，同时与国内外各大金融投资机构合作项目。

电网集团	国家电网　南方电网
五大发电集团	中国华电集团公司 CHINAHUADIANCORPORATION　中国大唐集团公司 China Datang Corporation　中国华能集团公司 CHINA HUANENG GROUP　国电电力　中电投集团
中央能源企业	中海油新能源　中广核风力　中国三峡新能源公司 China Three Gorges New Energy Co., Ltd.
重点地区能源企业	京能新能源　华能新能源　申能股份有限公司 SHENERGY COMPANY LIMITED
政府机构	中国风能协会　中国气象局公共气象服务中心　国家可再生能源中心
分布式投资企业	YINGLI SOLAR　SUNGROW 阳光电源　CHINT 正泰
金融机构	国家开发银行 CHINA DEVELOPMENT BANK　招商银行 CHINA MERCHANTS BANK　中国银行 BANK OF CHINA　CHINA LIFE 中国人寿

东润环能企业文化

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- 东润是一支怀揣梦想、差异互补、善于行动、快乐团结的团队！

人 人 享 用 智 慧 清 洁 能 源!

——公司愿景

“人人享用清洁智慧能源！”，关注客户体验，关注社会价值，关注真正的外部需求与支持者！实现愿景，企业就即能获得成功！

东润环能
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THANKS

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