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Regulatory Policies to Support a Green Power Sector

支持绿色电力部门的监管政策

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China's Energy and Environmental Goals

中国的能源和环境目标

- 16% energy intensity, 17% carbon intensity, and 4 other pollutant reduction goals in 12th FYP
- 40-45% carbon intensity reduction and 15% non-fossil goals by 2020
- General desire to control total energy and electricity consumption
- Control of coal consumption under discussion
- MEP's air quality management programs for "3 Regions and 6 City Clusters"
 - AQM rule identifies end-use energy efficiency (EE) as a means of reducing local air pollution
- “十二五”期间，能源强度降低16%，碳强度降低17%，以及另外四种污染物减少指标。
- 2020年前，碳强度降低40-45%，非化石能源比例达到15%。
- 控制总能耗和用电量的普遍愿望
- 煤炭总量控制正在讨论中
- 环保部“3个区域6个城市”空气质量
管理计划
 - 空气质量管理规则将提高终端能效作为一种减少地方空气污染的手段。

What's Green?

什么是绿色的？

- China's power sector accounts for roughly 50% of the country's coal consumption
- “Green” means economic and environmental sustainability over the long term
- A “green” power sector:
 - Minimizes local air pollution (NO_x, SO₂, PM, VOCs, etc.)
 - Greenhouse gas emissions
 - Waste of water and misuse of land
- 中国电力部门的煤耗占到国家总煤耗的大概50%。
- “绿色”意味着长期经济和环境的可持续。
- 一个“绿色”的电力部门应该：
 - 最小化地区空气污染（氮氧化物，二氧化硫，颗粒物，挥发性有机物等）
 - 温室气体排放
 - 废水和土地滥用

Current Policies to Promote Renewables

目前促进可再生能源发展的政策

- National goals:
 - 11.4% of primary energy from renewables by 2015
 - 100 GW of wind and 15 GW of solar by 2015
 - 15% of primary energy from renewables by 2020
 - 200 GW of wind and 50 GW of solar by 2020
- In support of these goals:
 - Feed-in tariffs for wind and solar
 - Priority given to renewables by grid companies in purchase and dispatch
- 国家目标：
 - 2015年可再生能源在一次能源中的比例达到11.4%。
 - 2015年有100GW的风电和15GW的太阳能发电
 - 2020年可再生能源在一次能源中的比例达到15%。
 - 2020年有200GW的风电和50GW的太阳能发电
- 为了支持实现这些目标：
 - 风电和太阳能发电的上网电价
 - 电网公司优先采购和调度可再生能源

Current Policies to Promote EE

目前促进能效的政策

- Top 10,000 Industries Program
- Differential pricing for industries
 - Retail electricity price rises as the enterprise's manufacturing efficiency goes down
- Energy Efficiency Power Plants (EPPs)
 - End-use energy efficiency investments aggregated to produce savings that replicate the output of a conventional power plant
- Demand-Side Management (DSM) Rule for grid company investment in EE and load reductions
 - 0.3% annual reductions in peak load and energy
- DSM Cities Program
 - Municipal requirements for reducing electricity demand
- 万家工业企业项目
- 工业差别电价
 - 零售电价随着工业企业生产能效的降低而升高。
- 能效电厂 (EPPs)
 - 终端能效项目组合产生节电量可以替代传统电厂。
- 需求侧管理条例 (DSM rule) 规定电力公司投资能效和减少负荷。
 - 每年减少最大负荷和用电量的0.3%
- 需求侧管理城市项目
 - 城市层面要求降低电力需求

Current Policies to Improve Environmental Protection

目前改善环境保护的政策

- End-use energy efficiency as tool to reduce emissions of pollutants
 - State Council Guidance: “Joint Prevention and Joint Control of Air Pollution” May 2010
- Local coal cap pilot programs three regions
 - Beijing, Yangtze River Delta, Pearl River Delta
- Co-control of air pollutants (SO_2 , NO_x , and CO_2) pilot in Urumqi
 - Impacts on water to be considered
- 把提高终端能效作为减少污染物排放的手段
 - 2010年5月，国务院指导意见：“大气污染联防联控”
- 三个区域的地区煤炭总量控制试点项目
 - 北京，长江和珠江三角洲地区
- 多种大气污染物（二氧化硫，氮氧化物和二氧化碳）协同控制在乌鲁木齐的试点
 - 需要考虑对水的影响

Key Regions Described in State Council's Regional Air Quality Guidance

国务院改善区域空气质量指导意见中描述的关键区域



- 1. Central Liaoning [Province] (Shenyang etc.)
- 2. Shandong Peninsula (Qingdao etc.)
- 3. Greater Wuhan
- 4. Changsha, Zhuzhou and Xiangtan region
- 5. Chengdu and Chongqing region
- 6. Areas around Taiwan Strait (Xiamen etc.)

- 7. Shanxi [Province] (Taiyuan etc.)
- 8. Shaanxi [Province] (Xi'an etc.)
- 9. Xinjiang [Province] (Ürümqi etc.)
- 10. Gansu [Province] (Lanzhou)

○ = Economic Zones
○ = City Clusters

Additional Policy Actions

额外的政策行动

- Institutional reforms
 - Clarify regulatory authority
 - Better integration of energy and environmental policy
- Develop improved planning methods to identify the least-cost mix of supply and demand-side options
 - “Scientific energy planning” (integrated resource planning)
 - Government responsibility for planning; grid company responsibility for implementation
- Use long-term contracts to acquire the identified supply and demand-side resources in the least-cost manner
 - Do not rely on competitive markets to manage generation dispatch or provide retail service. Without very strict controls, they can be too easily subjected to market power abuses
- 机构改革
 - 明确监管权责机构
 - 能源和环境政策更好的结合
- 改进规划手段识别最低成本的供电侧和需求侧资源的组合
 - “科学能源规划”（综合资源规划）
 - 政府负责规划；电网企业负责实施
- 利用长期合同以最小的成本来获得已识别的供电侧和需求侧的资源
 - 不要依靠竞争性市场来管理发电调度或者提供零售服务。没有严格的控制，他们很容易受市场权利的滥用。

Additional Policy Actions

额外的政策行动

- Adopt generation pricing and other practices to allow improved implementation of China's new power plant dispatch rules
 - Reform wholesale generation pricing practices to better reflect the value of alternative resources
 - Reward availability, not production
 - Revised grid codes to improve integration of renewables into system operations
- Building and appliance efficiency standards
 - By one estimate, over 80% of China's building stock in 2050 *has not yet been built*
- Better integration of energy and environmental policy
- 采用发电上网定价机制或者其他措施来完善新的电厂调度制度的实施。
 - 改革电力批发定价机制来更好地反映替代资源的价值。
 - 奖励可用性，而不是产出电量。
 - 修改电网技术标准来帮助可再生能源并网。
- 建筑和电器能效标准
 - 据估计，2050年超过80%的建筑存量目前还未建造。
- 能源和环境政策更好的结合

Additional Policy Actions

额外的政策行动

- Transmission and distribution:
 - T&D providers should be responsible for implementing integrated resource plans, investment, dispatch, and renewables integration
 - Regulatory policy ensure that the companies will be most profitable when they succeed in providing least-cost service
 - Expand the grid company DSM obligation and integrate it into the nation's overall energy conservation program
 - Thereby increasing savings and avoiding duplication of effort
- 输电和配电：
 - 提供输配电服务的电网公司应该负责实施综合资源规划，投资，调度和可再生能源并网
 - 监管政策应该保证电网公司在提供最低成本服务时获得最大的效益
 - 扩大电网公司需求侧管理义务并将其囊括在国家宏观的节能项目中
 - 进而增加节能，避免重复施力

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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