国 家 能 源 局
National Energy Administration

Renewable Energy Development in China and U.S.-China Collaboration

New Energy and Renewable Energy Department
National Energy Administration

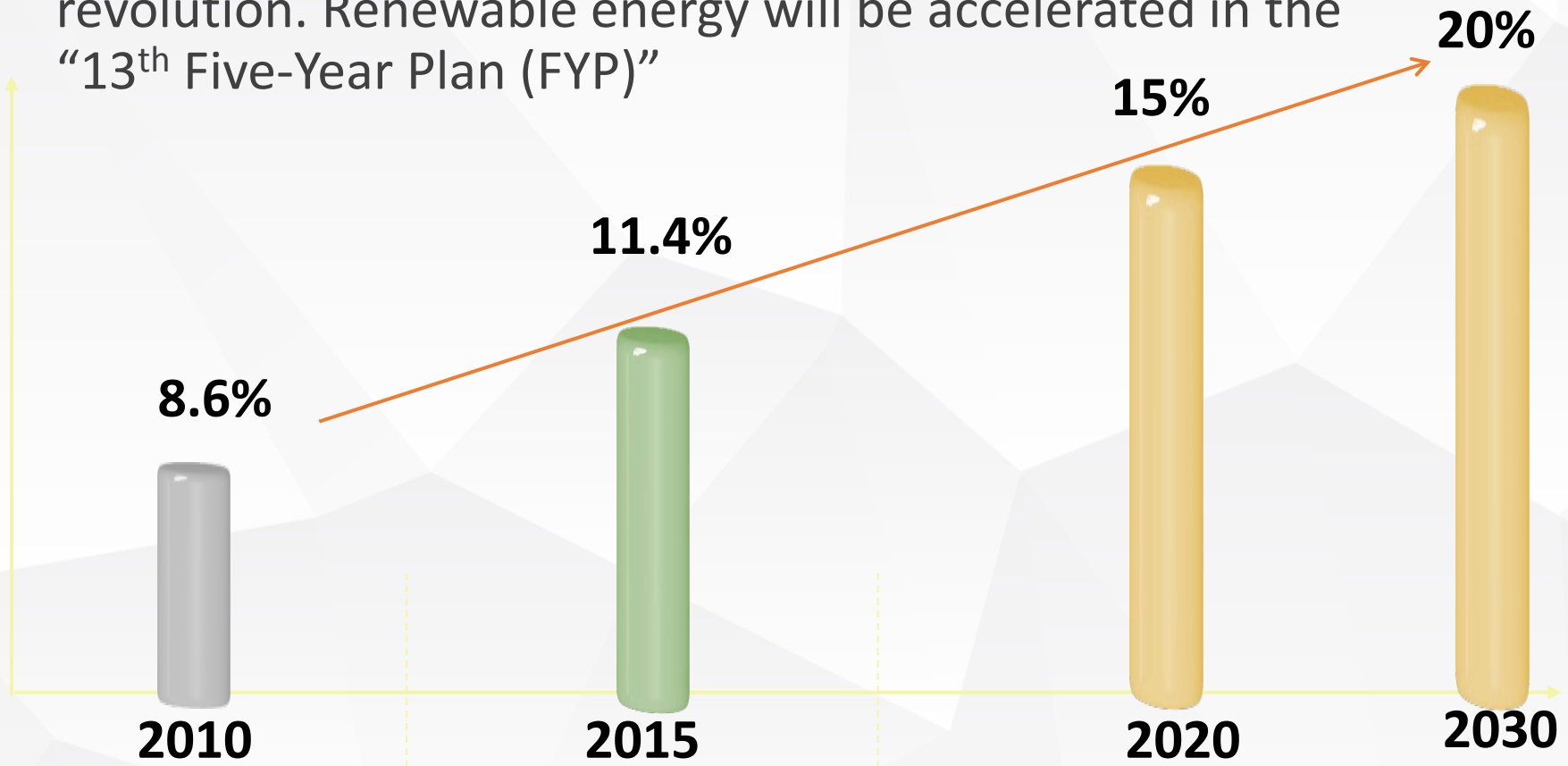
June 3, 2015

01

Development Trends and Policies

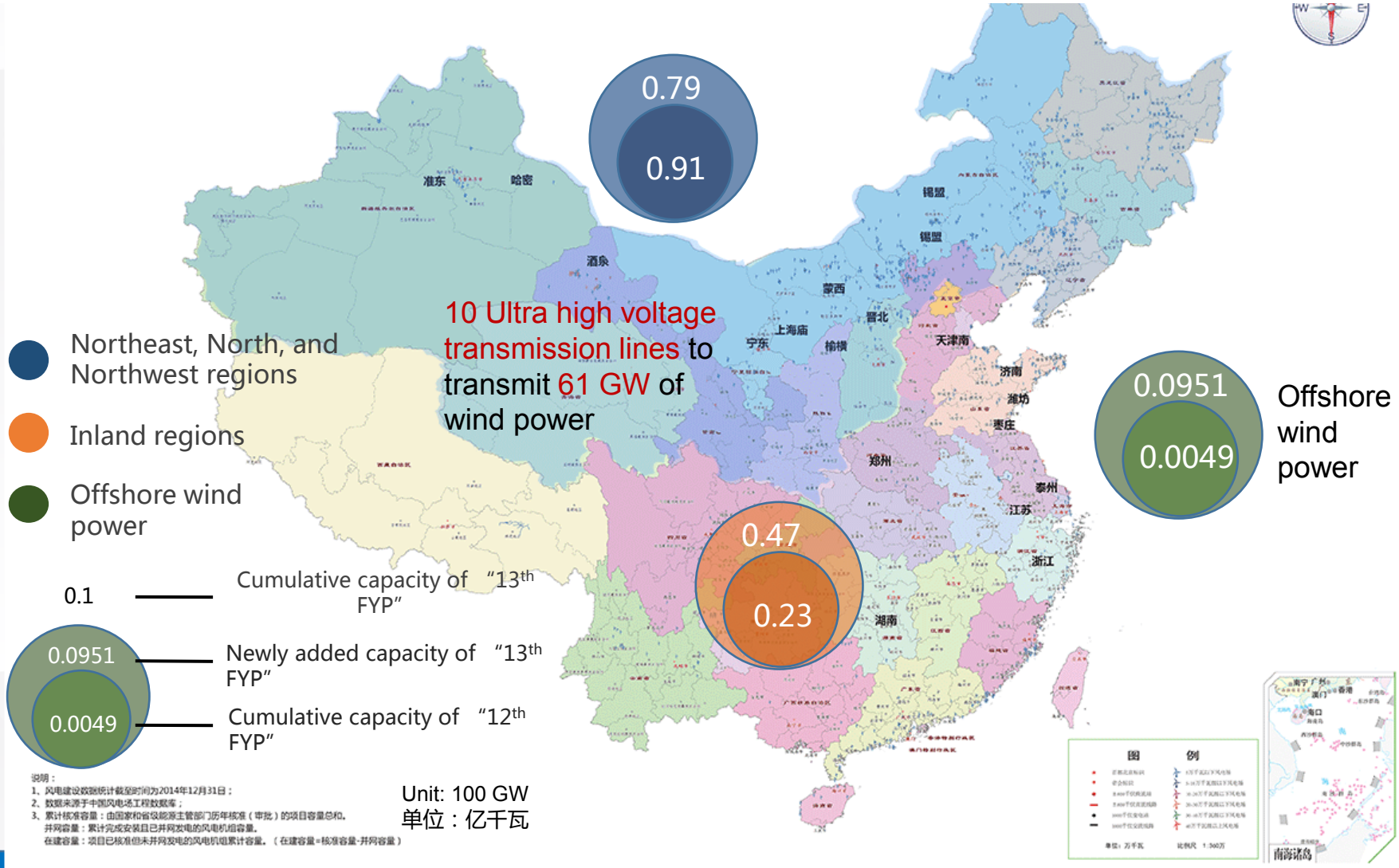
20% target for non-fossil energy

- U.S.-China Joint Announcement on Climate Change: increase the share of non-fossil fuels in China's primary energy consumption to around 20% by 2030
- China pushes for energy production and consumption revolution. Renewable energy will be accelerated in the "13th Five-Year Plan (FYP)"

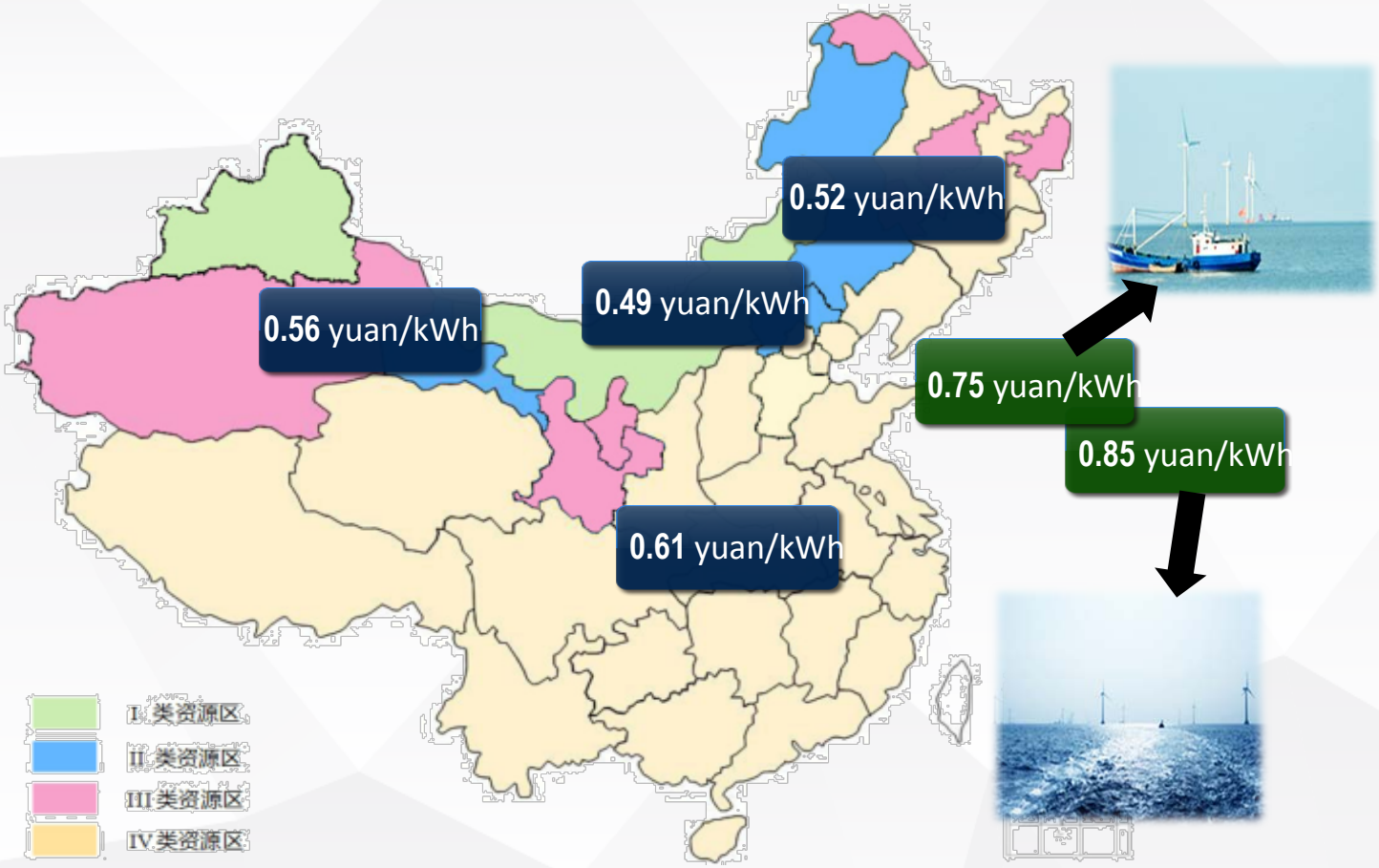


Adding 20 GW of wind power per year in "13th FYP"

Focus on both centralized and distributed large-scale long-distance electricity transmission



Steadily adjusting feed-in tariffs for wind power



Adding 20 GW of PV power per year in "13th FYP"

Total Installed Capacity

Ground Power Stations

Distributed

Adding 20 GW per year

- Combining the delivering channels of wind, PV, and thermal energy, develop large-scale ground power stations in **western regions with superior resources**, and reduce the cost of PV power generation through technological advancement and optimal design
- Actively building distributed PV in **middle and east regions**, promote local utilization of renewable energy and business model innovation

PV power policy framework

1

Fixed tariffs or price subsidy policies

PV power stations: fixed feed-in tariffs, 0.9, 0.95, 1 yuan/kWh

Distributed PV: subsidize 0.42 yuan/kWh for all electricity produced

2

Steamline project approval

PV power stations: registration at provincial or local energy authorities

Distributed PV: registration at city/county level energy authorities; personal projects need to register at grid companies

3

Grid integration operation and electricity purchasing

PV power stations: grid companies are responsible for building complimentary power transmission projects

Distributed PV: grid companies provide grid connection and electricity metering free-of-charge, and provide national subsidies on behalf of the national government

Promote solar thermal and power demonstration

- Conduct resource surveys, standard regulations
- Develop demonstration projects in western regions
- Research supportive tariff pricing policies

Comprehensive demonstration projects

- New Energy City
  - Large-scale application of new energy in urban cities
- Micro-grids
  - Town： grid-connected micro-grids
  - Island: off-grid micro-grids
- Renewable energy heating supply
  - Solar energy heating supply
  - Biomass heating supply
  - Wind power heating supply

Future policy directions

Implement renewable energy portfolio standards
(实施可再生能源电力配额制)

Supervision and evaluation on guarantee full purchases of renewable electricity
(可再生能源电力全额保障性收购监管和考核)

Promote power market reform, establish market trading mechanism
(推进电力市场化改革，建立市场化交易机制)

02

Deepening U.S.-China Collaboration in Renewable Energy

Continue industry exchange platforms

- Continue improving the current exchange/collaboration platforms
  - China Variable Generation Integration Group (CVIG)
  - China PV Power Financing Alliance (中国光伏电力投融资联盟)
  - PV Components Quality Assessment Group (PVQA)

- Establish new energy city exchange platforms
  - Advanced planning concepts, methods, and technologies
  - U.S-China city visits, exchange, and training

- New Energy Companies Investment Collaboration Platform

Power system planning and operation management

- Power system that adapts to new energy
- Large-scale long-distance transmission grid
- High penetration of distributed power generation that connects to the transmission and distribution network
- Optimize power operation scheduling
- Flexible power market mechanism

Investment, financing, and business model innovation

- Project financing
- Asset securitization
- Credit enhancement
- U.S.-China financing channel

New technology industrialization

- Solar thermal and power generation
- Smart micro-grid
- Internet + smart energy systems

Thanks！
谢谢！

国 家 能 源 局
National Energy Administration

中国可再生能源发展与中美合作

中国国家能源局
新能源和可再生能源司

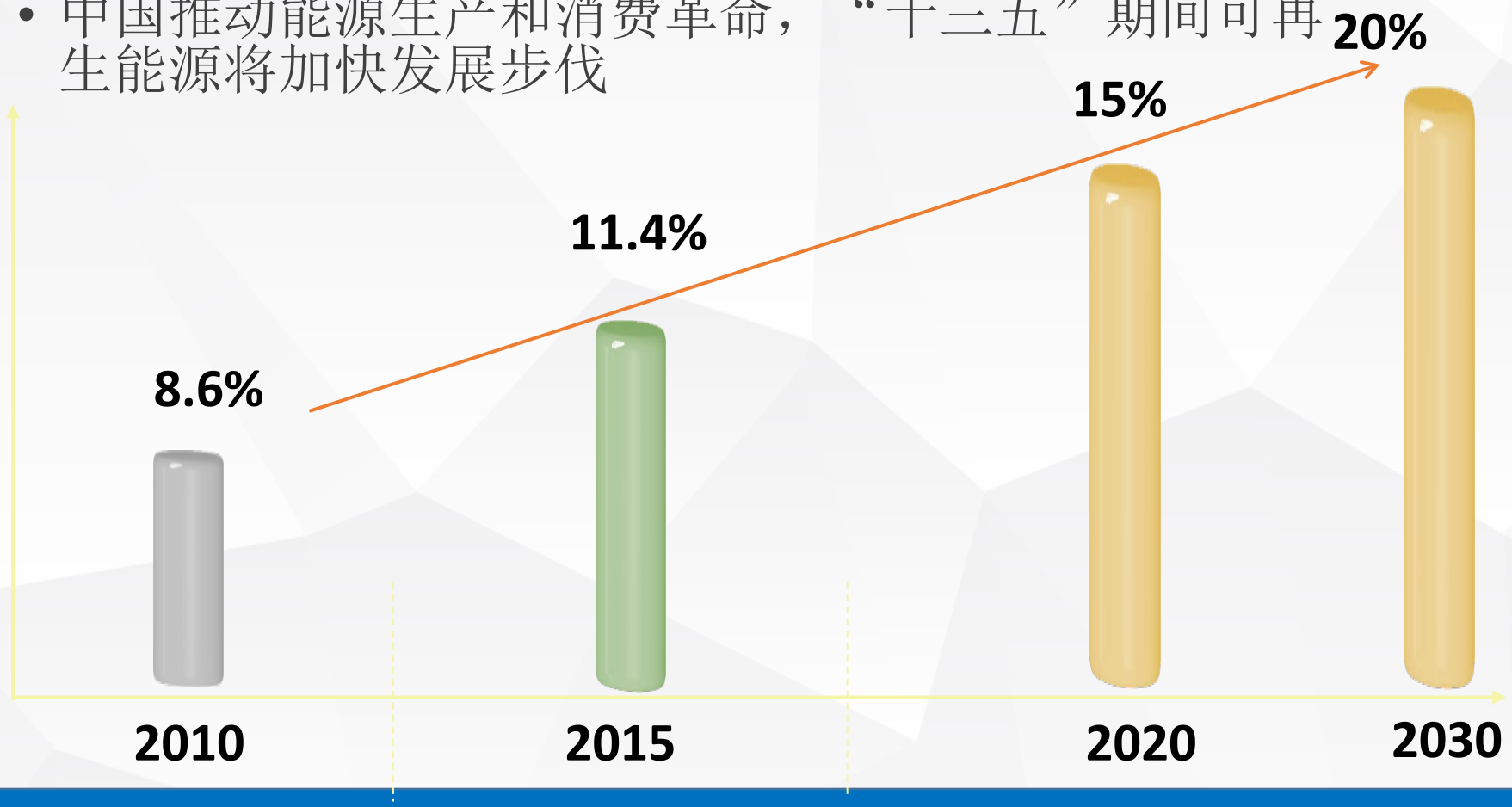
2015年6月3日

01

发展形势与政策

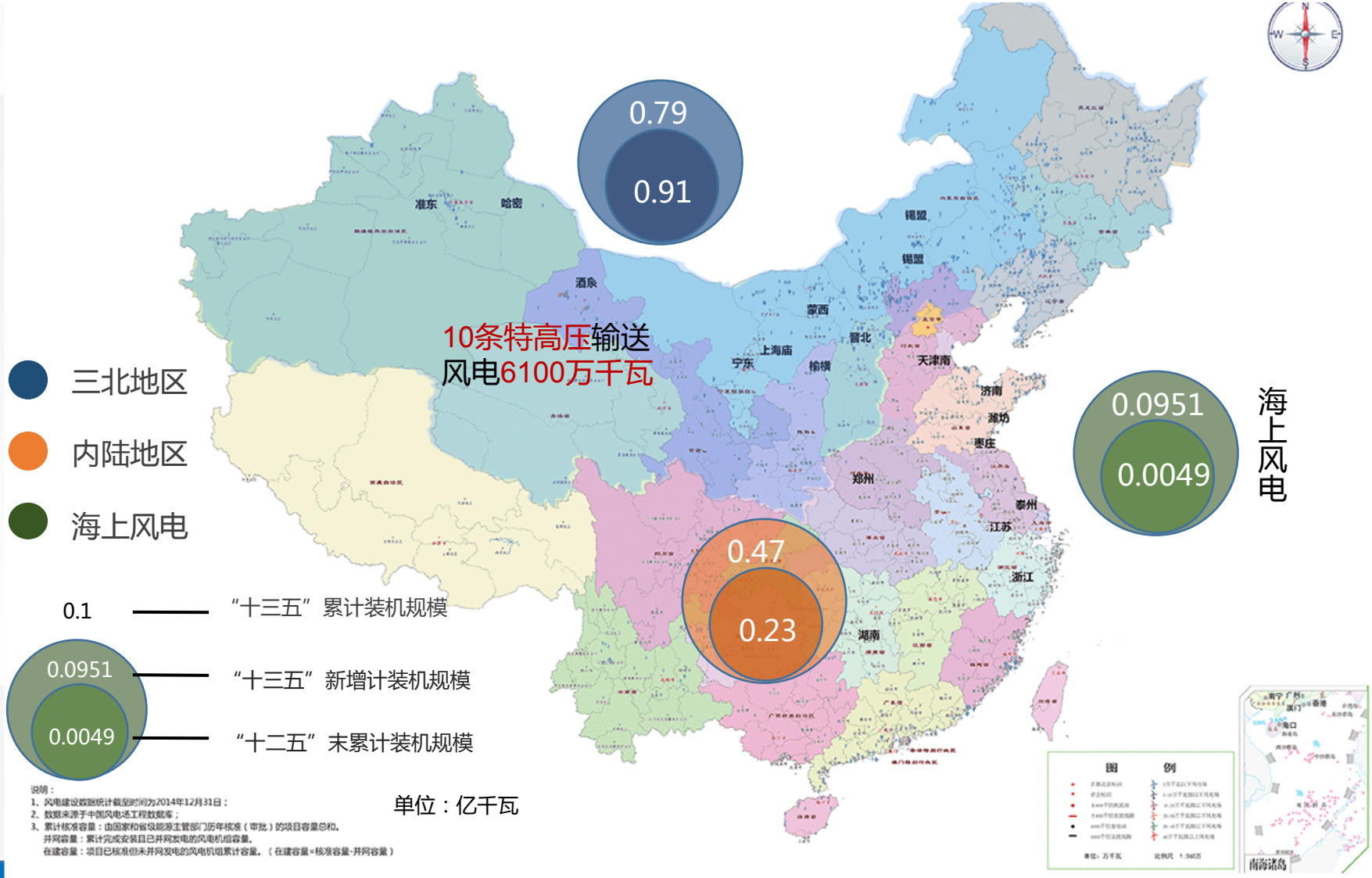
非化石能源比重目标20%

- 中美应对气候变化联合声明：中国2030年非化石能源占一次能源比重达到20%。
- 中国推动能源生产和消费革命，“十三五”期间可再生能源将加快发展步伐



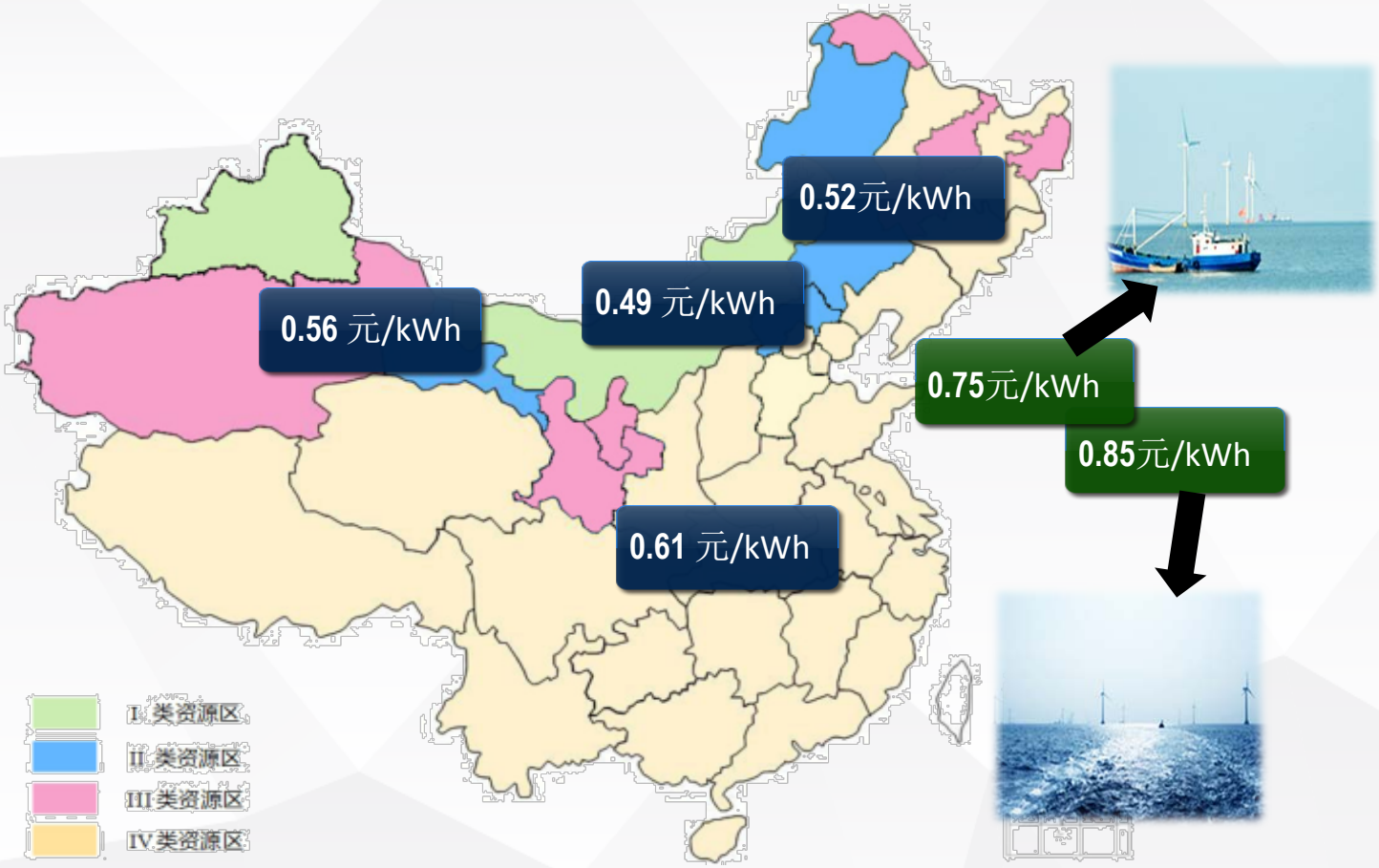
十三五年增超过2000万千瓦风电

集中与分散并重，大规模远距离输电



说明：
1、风电建设数据统计截至时间为2014年12月31日；
2、数据来源于中国风电场工程数据库；
3、累计核准容量：由国家和省级能源主管部门历年核准（审批）的项目容量总和。
并网容量：累计完成安装且已并网发电的风电机组容量。
在建容量：项目已核准但未并网发电的风电机组累计容量。（在建容量=核准容量-并网容量）

稳步调整风电上网电价


0.52元/kWh
0.49 元/kWh
0.56 元/kWh
0.75元/kWh
0.85元/kWh
0.61 元/kWh
I 类资源区
II 类资源区
III 类资源区
IV 类资源区

十三五年增2000万千瓦光伏发电

总装机	年均新增2000万千瓦
地面电站	■ 结合风光火打捆外送通道，在**西部资源优越地区**开展大型地面电站建设，通过技术进步和优化设计，促进光伏发电成本下降
分布式	■ 在**中东部地区**积极建设分布式光伏，促进可再生能源就地利用和商业模式创新。

光伏发电政策框架

1

固定电价或电价补贴政策

光伏电站：固定上网标杆电价，0.9、0.95、1元/千瓦时

分布式光伏：对全部发电量补贴0.42元/千瓦时

2

简化项目审批

光伏电站：在省级或地方能源主管部门备案；

分布式光伏：在市县级能源主管部门备案，个人项目由电网代理备案

3

并网运行和电量收购

光伏电站：电网企业负责建设配套电力送出工程；

分布式光伏：电网企业免费接入、电量计量，代发国家补贴

推进太阳能热发电示范

- 开展资源调查、标准规范
- 在西部建设一批示范项目
- 研究扶持电价政策

综合示范项目

- 新能源城市
  - 新能源在城镇中的规模化应用
- 微电网
  - 城镇：并网式微电网
  - 海岛：离网式微电网
- 可再生能源供热
  - 太阳能供热
  - 生物质供热
  - 风电供热

未来政策方向

- 实施可再生能源电力配额制
- 可再生能源电力全额保障性收购监管和考核
- 推进电力市场化改革，建立市场化交易机制

02

深化中美可再生能源合作

行业持续交流平台

- 不断提升现有平台交流合作水平
  - 可再生能源并网研究协作组(CVIG)
  - 中国光伏电力投融资联盟
  - 光伏组件质量工作组（PVQA）

- 建立新能源城市交流平台
  - 先进规划理念方法和技术
  - 中美城市互访、交流、培训

- 新能源企业投资合作平台

电力系统规划和运行管理

- 适应新能源的电力系统
- 大规模远距离输电网
- 高渗透率分布式发电接入配电网
- 优化电力运行调度
- 灵活电力市场机制

投融资和商业模式创新

- 项目融资
- 资产证券化
- 信用增级
- 中美融资通道

新技术产业化

- 太阳能热发电
- 智能微电网
- 互联网+智慧能源系统

Thanks！
谢谢！