

# Energy outlook in China

Li Junfeng

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Tokyo Japan

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# Development transition

- Past: 2005 to 2010
  - Incremental GDP growth was 7.3 trillion RMB, during 5 years
  - Incremental energy use was 1.3 billion toe during 5 years period
- Current: 2012 to 2017
  - Incremental GDP growth was 28.7 trillion RMB, during 5 years
  - Incremental energy use was 1.3 billion toe during 5 year period
- Future
  - By 2020, China will be Xiaokang, or high level developing country
  - Around 2030, China will be peak time of carbon emission
  - By 2035, China will be a primary developed country
  - By 2050, China will be a real developed country
  - Quality growth will be the only option for China

# Development transition pathway

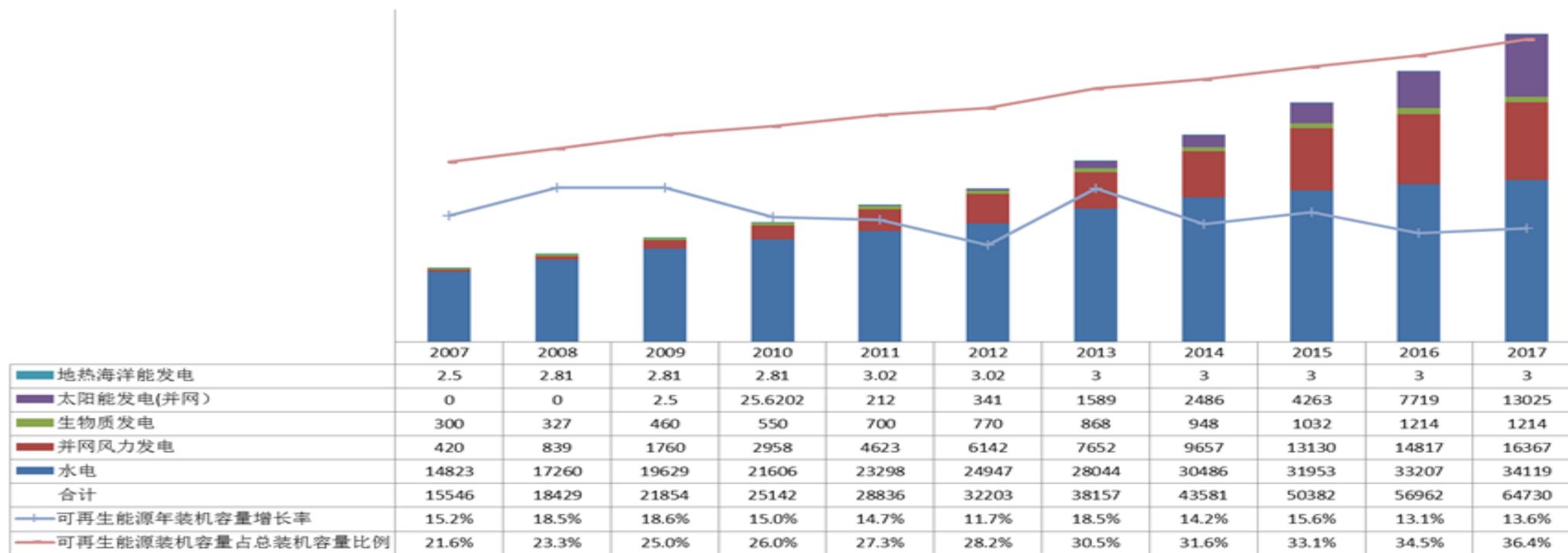
- Low carbon economic growth
- Low carbon energy system
- Low carbon consumption options

# Energy transition in China

- Past: before 2010
  - Coal was over 70%
  - Non-fossil fuels was less than 10%
  - Natural gas less than 5%
- Current: 2017
  - Coal took 60.4%
  - Non-fossil fuels took about 14%
  - Natural gas was about 7%
- Target
  - By 2020
    - Non-fossil fuels will be 15%
    - Non-fossil power will be 35%
  - By 2030
    - Non-fossil fuels will be 20%
    - Non-fossil power will be 50%
  - By 2050
    - Non-fossil fuels will be not less 50%
    - Non-fossil power will be not less 75%

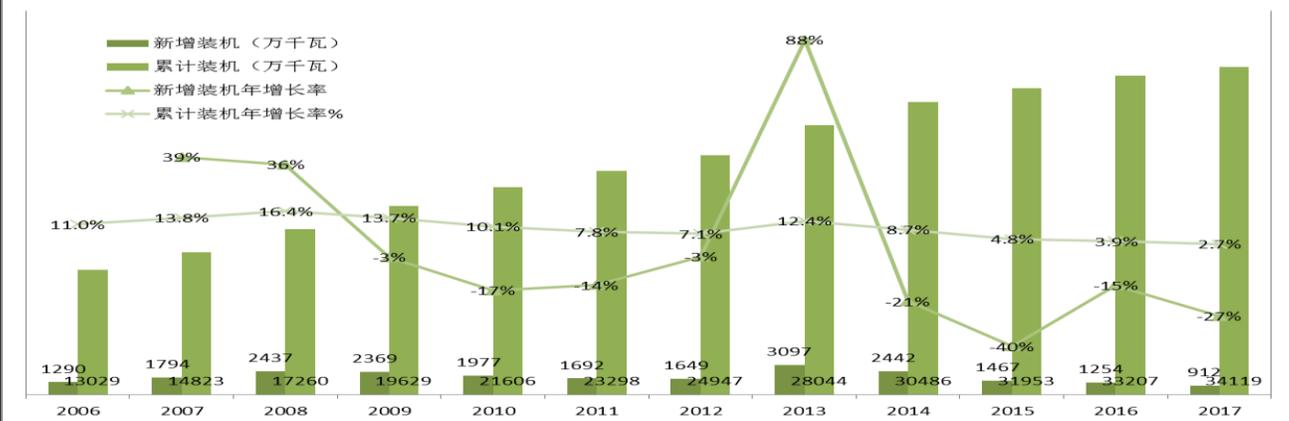
# Renewable energy developemnt

中国可再生能源装机容量（万千瓦）



# Hydro-power

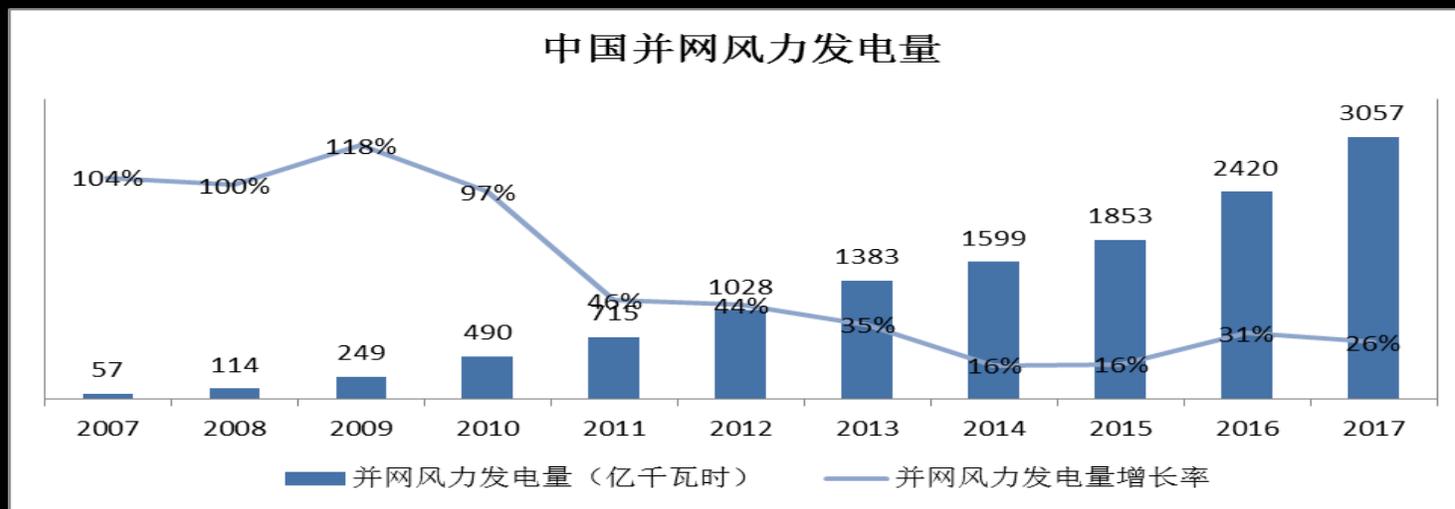
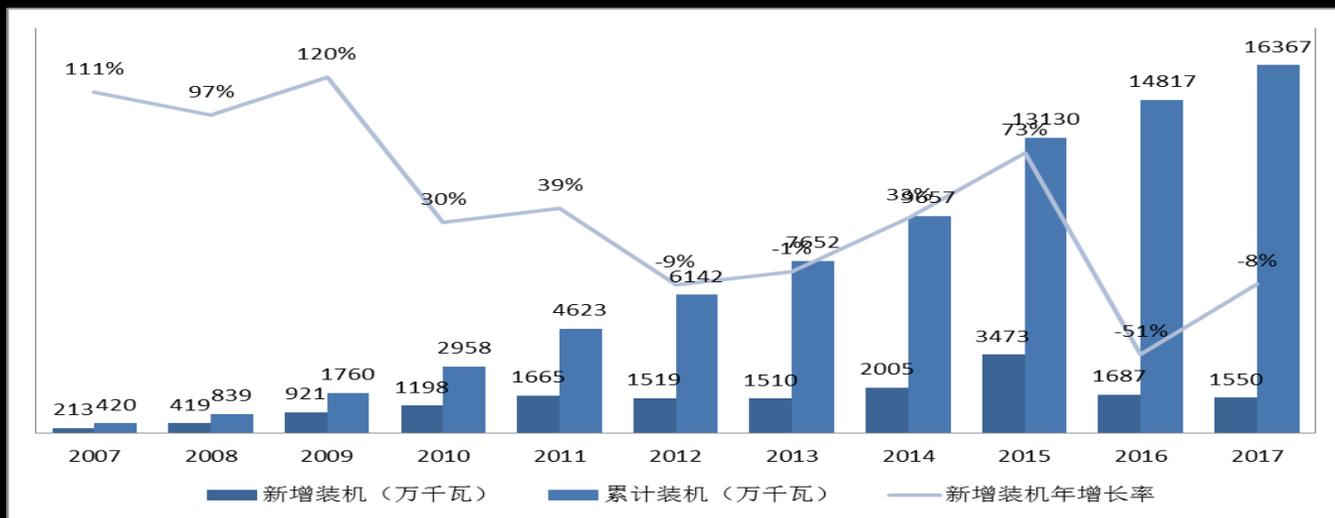
## 中国水电装机容量



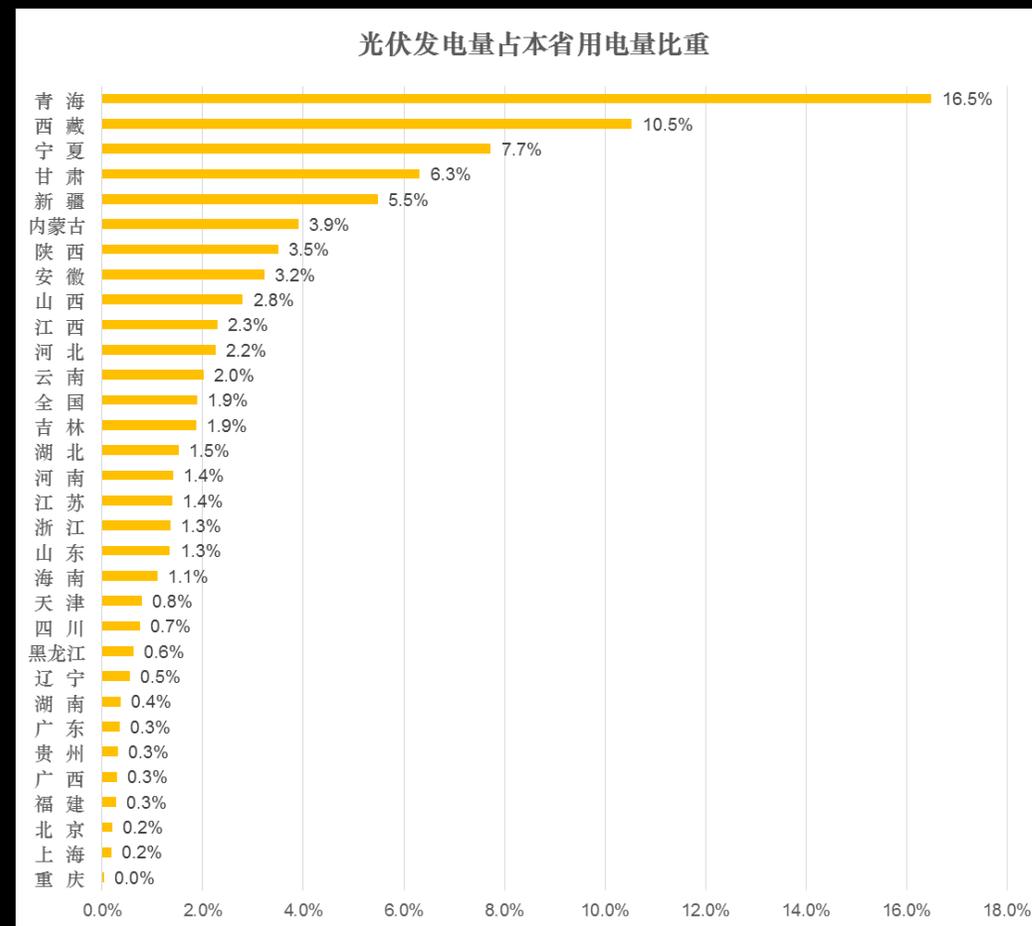
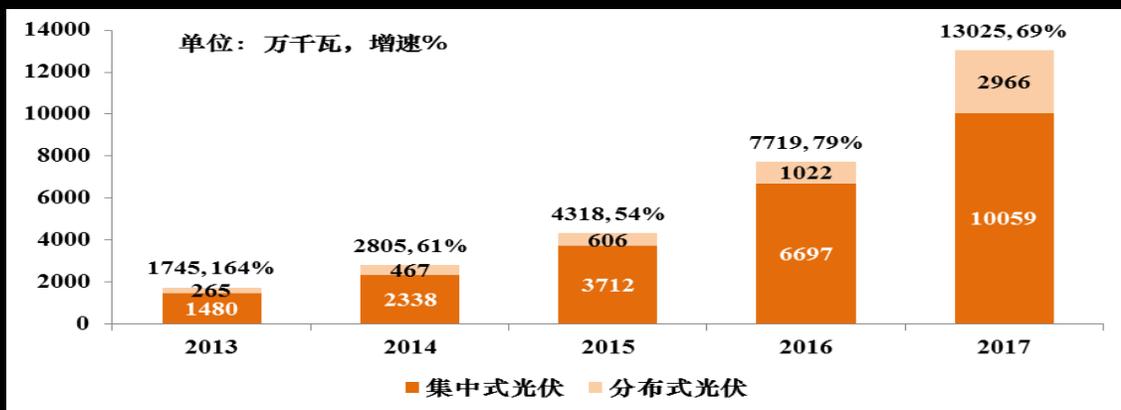
## 中国水电发电量



# Wind power



# Solar power



# Future target

- Capacity

- By 2020

- Wind 250 GW
    - Solar power 200 GW
    - Hydropower 360 GW

- By 2030

- Wind 500 GW
    - Solar power 1000 GW
    - Hydropower 400 GW

- By 2050

- Wind 1000 GW
    - Solar power 2000 GW
    - Hydropower 400 GW

- Generation

- By 2020

- Wind 500 TWh
    - Solar power 130 TWh
    - Hydropower 1400 TWh
    - 30% of total power generation

- By 2030

- Wind 1000 TWh
    - Solar power 1250 TWh
    - Hydropower 1400 TWh
    - 45% of total power generation

- By 2050

- Wind 2200 TWh
    - Solar power 2400 TWh
    - Hydropower 1400 TWh
    - 67% of total power generation

# Cost estimation

- Current
  - Wind average price is 0.5 Yuan/kWh
  - Solar average price 0.7 Yuan/kWh
  - Coal average price 0.4 Yuan/kWh
- By 2020
  - Wind average price will be 0.45 Yuan/kWh
  - Solar average price will be 0.55 Yuan/kWh
  - Coal average price will be 0.45 Yuan/kWh
  - Wind power  $\approx$  coal power
- By 2025
  - Wind average price will be 0.40 Yuan/kWh
  - Solar average price will be 0.40 Yuan/kWh
  - Coal average price will be 0.45 Yuan/kWh
  - Wind power  $\approx$  coal power
  - Solar PV  $\approx$  coal power
- Which means renewable energy will no longer be subsidized that by 2025.

# Future energy partners

- Smart grid
- EV
- Renewable energy

# Thanks !

Tel: +86 10 63909290  
Fax: +86 10 63909213  
Email: [lijf@ncsc.org.cn](mailto:lijf@ncsc.org.cn)

