The Developing Trend of Renewable Energy in China

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National Center for Climate Change Strategy and International Cooperation (NCSC)
The Global Status of Renewable Energy
## Total Renewable Energy from 2009 to 2016

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Total Global Capacity</td>
<td>MV</td>
<td>1,133,347</td>
<td>1,223,089</td>
<td>1,326,016</td>
<td>1,444,143</td>
<td>1,563,539</td>
<td>1,690,177</td>
<td>1,845,180</td>
<td>2,006,202</td>
</tr>
<tr>
<td>Hydropower</td>
<td>MV</td>
<td>991,919</td>
<td>1,024,581</td>
<td>1,056,283</td>
<td>1,089,474</td>
<td>1,132,761</td>
<td>1,170,107</td>
<td>1,207,853</td>
<td>1,242,961</td>
</tr>
<tr>
<td>Marine energy</td>
<td>MV</td>
<td>269</td>
<td>271</td>
<td>525</td>
<td>528</td>
<td>527</td>
<td>527</td>
<td>533</td>
<td>536</td>
</tr>
<tr>
<td>Wind Energy</td>
<td>MV</td>
<td>150,142</td>
<td>182,684</td>
<td>222,052</td>
<td>271,714</td>
<td>303,675</td>
<td>350,225</td>
<td>415,304</td>
<td>465,505</td>
</tr>
<tr>
<td>Solar PV</td>
<td>MV</td>
<td>22,578</td>
<td>38,903</td>
<td>69,746</td>
<td>99,347</td>
<td>135,426</td>
<td>172,289</td>
<td>220,132</td>
<td>290,791</td>
</tr>
<tr>
<td>Concentrated Solar Power</td>
<td>MV</td>
<td>782</td>
<td>1,260</td>
<td>1,727</td>
<td>2,591</td>
<td>3,858</td>
<td>4,418</td>
<td>4,659</td>
<td>4,873</td>
</tr>
<tr>
<td>Bioenergy</td>
<td>MV</td>
<td>63,701</td>
<td>69,413</td>
<td>74,740</td>
<td>81,412</td>
<td>88,794</td>
<td>94,516</td>
<td>101,108</td>
<td>109,731</td>
</tr>
<tr>
<td>Geothermal Energy</td>
<td>MV</td>
<td>9,903</td>
<td>10,125</td>
<td>10,015</td>
<td>10,482</td>
<td>10,787</td>
<td>11,457</td>
<td>11,848</td>
<td>12,628</td>
</tr>
<tr>
<td>Off-grid capacity</td>
<td>MV</td>
<td>565.02</td>
<td>613.78</td>
<td>765.01</td>
<td>883.67</td>
<td>1,006.44</td>
<td>1,204.39</td>
<td>1,587.18</td>
<td>2,786.64</td>
</tr>
</tbody>
</table>

Source: IRENA
By the end of 2016, the global installed capacity of renewable energy power generation reached 2,006G, in which hydropower reached 1122GW, wind power and solar energy installed capacity were 467GW and 296GW. In addition, there are 110GW biomass energy, 13GW geothermal energy, and 500MW ocean energy (tides, waves, currents).
• In order to reduce greenhouse gas emissions and consumption of fossil fuels, countries have already acted following the Paris agreement came into force.

• The investment in renewable energy has been strengthened and the market has been expanding.

Total Global Capacity of Renewable Energy (2007~2016)

Source: IRENA, Renewable Capacity Statics 2017
The Regional Distribution of Global Renewable Energy

<table>
<thead>
<tr>
<th>Region</th>
<th>Capacity</th>
<th>Global share</th>
<th>Increase</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>330 GW</td>
<td>16%</td>
<td>+24 GW</td>
<td>+7.8%</td>
</tr>
<tr>
<td>Central America and the Caribbean</td>
<td>13 GW</td>
<td>1%</td>
<td>+1.4 GW</td>
<td>+11.7%</td>
</tr>
<tr>
<td>South America</td>
<td>193 GW</td>
<td>10%</td>
<td>+13.2 GW</td>
<td>+7.4%</td>
</tr>
<tr>
<td>Europe</td>
<td>487 GW</td>
<td>24%</td>
<td>+21 GW</td>
<td>+4.4%</td>
</tr>
<tr>
<td>Middle East</td>
<td>16 GW</td>
<td>1%</td>
<td>+0.5 GW</td>
<td>+2.9%</td>
</tr>
<tr>
<td>Asia</td>
<td>812 GW</td>
<td>41%</td>
<td>+94 GW</td>
<td>+13.1%</td>
</tr>
<tr>
<td>Oceania</td>
<td>26 GW</td>
<td>1%</td>
<td>+0.8 GW</td>
<td>+3.0%</td>
</tr>
</tbody>
</table>

Source: IRENA
The Status of Renewable Energy in China
Total Capacity of Main Renewable Energy from 2009 to 2016

Unit: MW

Source: IRENA
In 2016 China's wind power installed capacity of 23.37 GW, the cumulative installed capacity reached 169 GW; In 2016, China's wind cumulative installed capacity accounted for 34.7% of the global market share.
China Solar Market

In 2016, China's new installed capacity of 34.54 GW (including DPV 4.24GW), the cumulative installed capacity of 77.42 GW.
The Ideas and Goals on Developing Renewable Energy

- During the 13th Five-Year Plan, we will actively develop hydropower, comprehensively coordinate and promote the development of wind power, promote the diversified utilization of solar energy, develop biomass energy according to local conditions, accelerate the development and utilization of geothermal energy, and promote the demonstration application of marine energy.

The Safeguarding Measure of Renewable Energy

- To establish the target guidance system.
- To monitor the early warning mechanism.
- To set up subsidy optimization mechanism.
- To guide the decline in Feed-in Tariff, but also to solve the problem of insufficient supply of renewable energy sources.
十三五的可再生能源的主要发展目标
Main development goals of renewable energy of 13th Five-year-Plan

2016年底，国家发改委印发了《可再生能源发展“十三五”规划》:

- 到2020年非化石能源占能源消费总量比例达到15%，2030年达到20%。
- 到2020年，全部可再生能源年利用量7.3亿吨标准煤；全部可再生能源发电装机6.8亿千瓦，发电量1.9万亿千瓦时，占全部发电量的27%。
- 到2020年，风电项目电价与当地燃煤发电同台竞争，光伏项目电价与电网销售电价相当。
- 到2020年底，全国风电并网装机确保达到2.1亿千瓦以上，海上风电开工建设1000万千瓦；太阳能并网装机确保实现1.1亿千瓦以上；太阳能热利用集热面积达到8亿平方米。
中国能源革命的三步走战略
Three - step Strategy of China’s Energy Revolution

从现在起到2020年，开启能源革命之路

结合大气环境质量治理，全面遏制化石能源特别是煤炭消费过快增长的势头

2020-2035年，完成能源清洁化进程

• 加强经济发展转型和技术进步
• 大幅度提高天然气的消费比例，为大幅度提高可再生能源比例奠定基础

2035-2050年，全面实现能源低碳化，到本世纪末实现零碳化

• 形成完整的低碳产业链，低碳经济发展初具规模

从现在起到2020年，开启能源革命之路
Thank You!

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