Energy & China

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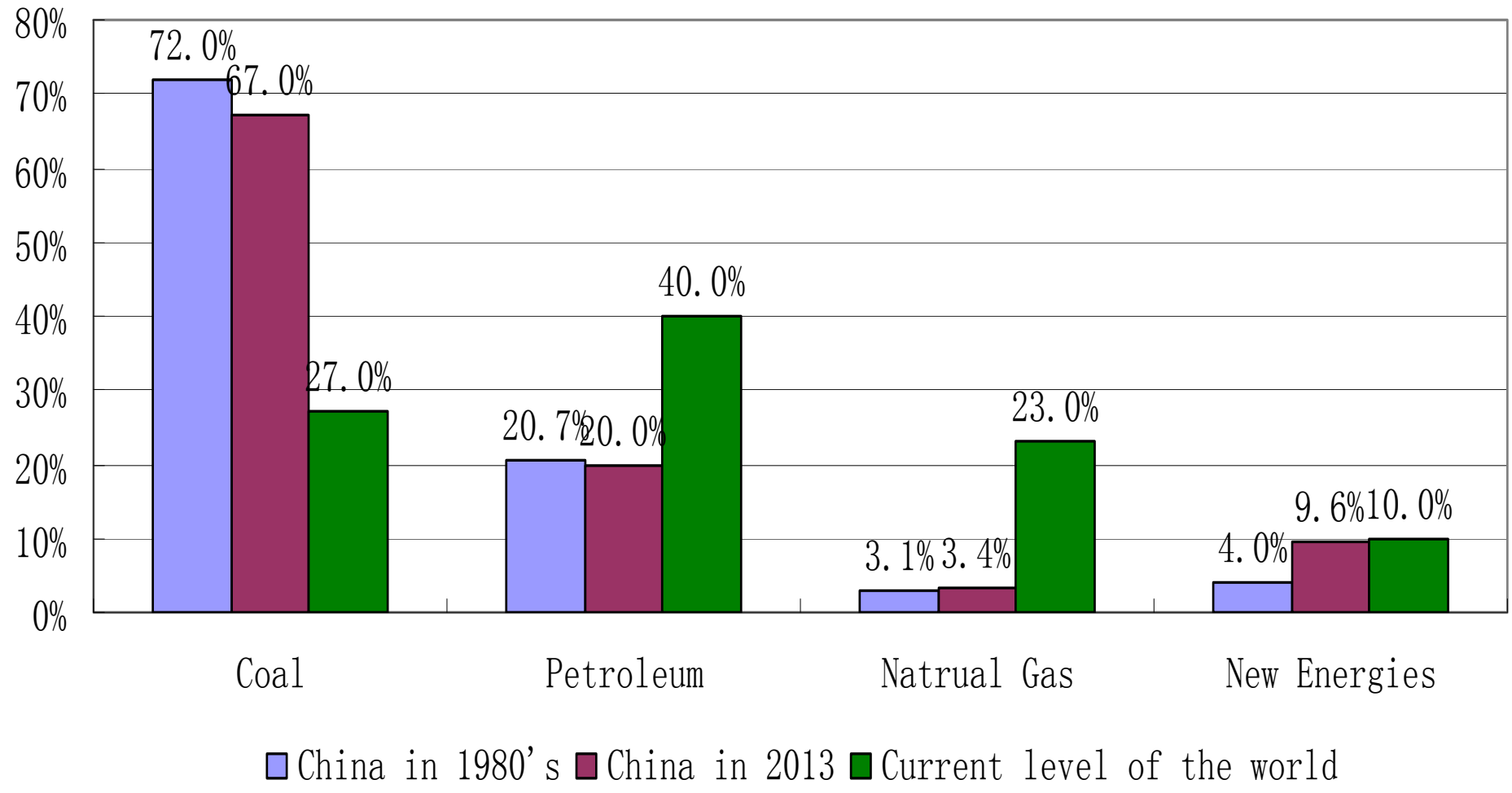
Energy Consumption Structure

China's evolution and the current level of the World



Part 1:Energy Structure of China (2013)

- Coal 67%
- Petroleum 20%
- Natural Gas 3.4%
- New Energies 9.6%

Energy Consumption Structure of China (20thC 80's)

- Coal 72%
- Petroleum 20.7%
- Natural Gas 3.1%
- New Energies 4%

Energy Consumption Structure of the World

- Petroleum 40%
- Coal 27%
- Natural Gas 23%
- Nuclear Power 7%
- Hydro energy 3%

Low Level of Energy Procession (PRC)

- Proportion of energy storage and per capita consumption
  - Proven industrial reserves
    - Petroleum
    - Natural gas
  - Industrial reserves on per capita level
    - Petroleum 10% of global average one
    - Natural gas 5% of global average one

Energy Consumption Structure Comparison between China and the World

- Consumption proportion vs the world average one
  - Coal + 41.5%
  - Petroleum - 16%
  - Natural Gas - 20.5%

Bilateral Energy Cooperation between China and other Resource-rich Countries

- China has already established bilateral energy cooperation mechanism with nearly 30 resource-rich countries and take part in more than 20 international energy cooperation organizations and negotiation mechanism

China's Current Energy Output

- In 2012,
  - Petroleum 205 million tons, +1%
  - Natural gas 0.1 trillion cubic meter +5.4%
  - Coalbed gas 2.57billion cubic meter +24%

China's Overseas Energy Importation

- **The energy importation volume in the year of 2012:**
- Crude Oil 271million tons
- The ratio of dependence 56.4%
- Natural Gas The ratio of dependence 26.2%

- **China's future energy consumption and importation**
- Oil Consumption: 585 million tons in 2015
- 738 million tons in 2020

- Oil Importation: 385 million tons in 2015
- ratio of dependence 66%

- 538 million tons in 2020
- ratio of dependence 73%

China’s overseas suppliers of Crude Oil

- The top 10 crude oil suppliers of China in order are respectively:
- Saudi Arabia, Angola, Russia, Iran, Oman, Iraq, Venezuela, Kazakhstan, Kuwait and the United Arab Emirates.
- Among them, Saudi Arabia ranks No.1 with nearly 54 million oil exportation to China.
- almost 50% of China’s total volume of overseas oil importation comes from Middle East Countries

Challenges Facing China's Overseas Energy Supply Safety

1. China's most oil suppliers are located in turbulent area where economical and political unrest frequently occurs, which poses high risk of unstable oil supply chain.

2. China's oil importation are mainly dependent on marine transport, which seems relatively fragile and definitely requests strong escorting ability in the future.

3. The situation development of Iran nuclear issue as well as the complicated geographical environment of Hormoz Strait and Malacca Strait will undoubtedly affected the safety of the two crucial waterways, on which China's oil importation delivery heavily depends.

Part 2: Prospect of Energy, Economy and Trade Cooperation between China and the Middle East Countries

1. **2012, China energy importation volume from Middle East Countries**

   138 million tons of oil (42% of total oil importation)

   4.3 billion cubic meter of natural gas (14% of total gas importation)

2. China seeks sustainable and diversified overseas energy supply

   Middle East Countries expect a stable and huge overseas energy consumption market. **Both sides has a great relevance and strong complementarity.**

3. **This old Silk Road** linked China with the Middle East Countries commercially and culturally more than one thousand years ago. Presently, **a new Silk Road** is being established through energy and trade cooperation.

Prospect of Energy, Economy and Trade Cooperation between China and the Middle East Countries

4. the transnational capital flows between China and GCC Countries

15 billion USD in 2012

300 billion USD by the end of 2020

A new huge economic and trade circle consisting of China and GCC will come into being, which will further expanding the energy trade between the two sides.

Prospect of Energy, Economy and Trade Cooperation between China and the Middle East Countries

5. The bilateral trade volume has already jumped to one hundred and ninety billion USD in 2011 from the 36.4 billion USD in 2004 ever since the China-Arab Cooperation Forum was established.

Prospect of Energy, Economy and Trade Cooperation between China and the Middle East Countries

6. Presently, China has an accumulated investment more than 15 billion USD in Arabic countries and the latter also has a huge investment of nearly 3 billion USD.

Prospect of Energy, Economy and Trade Cooperation between China and the Middle East Countries

7. China has already replaced the United States of America as the No.1 trade partner in 2009, and this promising development trend will continue in the future.

Prospect of Energy, Economy and Trade Cooperation between China and the Middle East Countries

8. Besides energy and resources trade, Chinese investors come to pay more attention to other cooperative areas with the Arabic countries, and China has also signed the currency swap agreement with some Arabic countries such as the United Arab Emirates, so as to diversify the bilateral trade cooperation and put forward the process of RMB internationalization.

Part 3: Prospect of China's new energy revolution

1. **The world energy consumption will increase by 30% by the end of 2030.**

2. **China's 12th Five-Year Energy Development planning**

PM2.5 emission in 2015 will be reduced by more than 30% compared with that of 2010

Total energy consumption volume will be strictly controlled with 4 billion standard coal unit and 6.15 trillion kw-hr by the end of 2015

Energy consumption per 10 thousand RMB equivalent value production will be lowered to 0.68 ton of standard coal unit

Part 3: Prospect of China's new energy revolution

3. China's new energy revolution:

Thermal electricity, hydropower, nuclear energy development will be turned into green or environment friendly one

- Thermal electricity transformation: measures of denitrification transformation is supposed to be carried out on national generation unit of 600 million kw-hr

Part 3: Prospect of China's new energy revolution

- **hydropower transformation**:

  Conventional hydropower installed capacity will reach 330 million kw-hr by the end of 2020, lowering the energy dependency on coal consumption.

Part 3: Prospect of China's new energy revolution

- **Nuclear power transformation**:

newly construct 30 nuclear power stations in 20 years

restart the nuclear power stations construction which was temporarily frozen during the period of 12th Five-year planning

Part 3: Prospect of China's new energy revolution

- **New Energy Development**

  Chinese government will spare no efforts to encourage the development of new energy including: wind power, solar power, biomass energy.

  (1) wind power output: 0.1 trillion kw-hr in 2012, ranking No.1 in the world

  (2) nuclear power output: 98.2 billion kw-hr in 2012, becoming the third biggest power resource followed by thermal electricity and hydropower

Part 3: Prospect of China's new energy revolution

(3) solar power and biomass energy development have already taken a good shape with the supporting policies from the government.

(4) special high-voltage power grid and smart grid is being constructed across the country, so as to improve the optimal allocation of all kinds of energy

(5) China's new energy revolution strongly links *Chinese Dream*