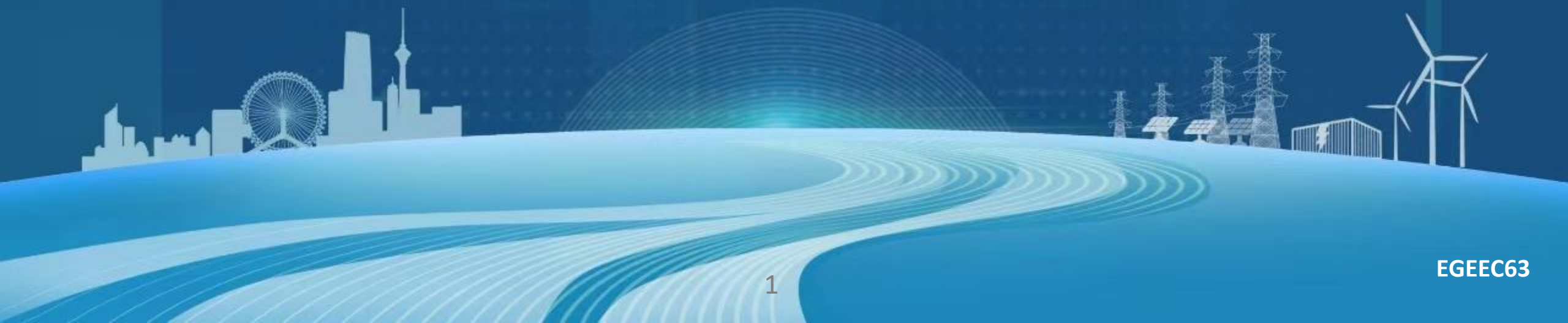
Accelerating Energy Transition:

----Experiences & Insights Sharing from China

The 63rd Meeting of APEC Expert Group on Energy Efficiency & Conservation (EGEEC 63)



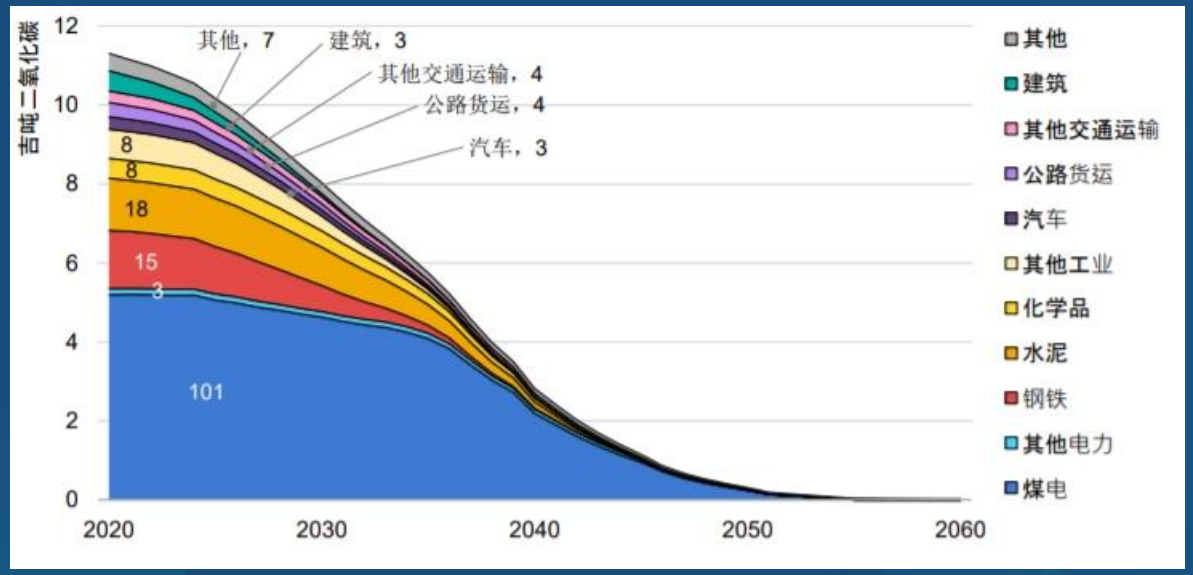
BACKGROUND

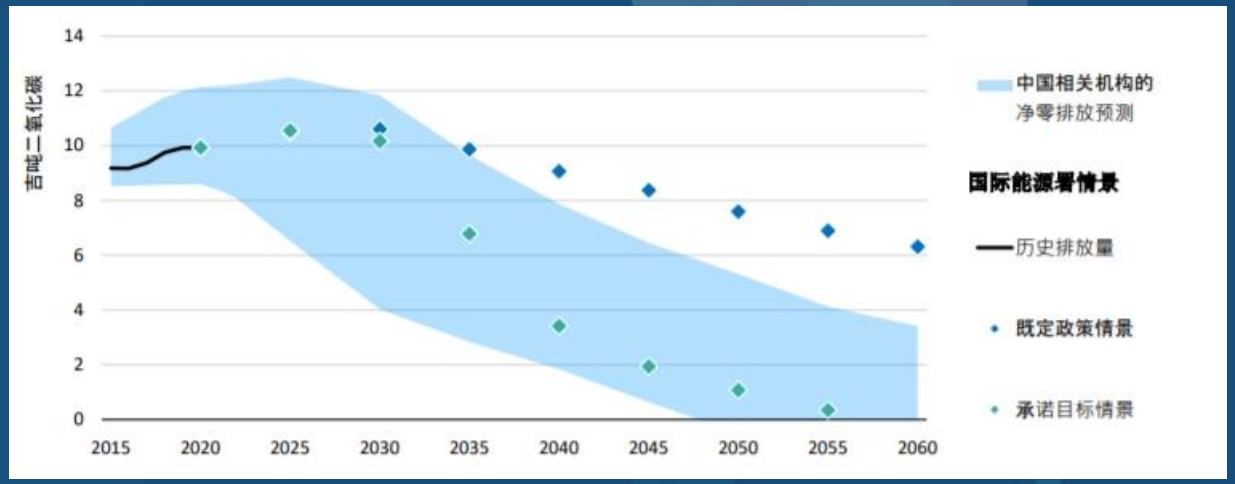
Carbon peak by 2030

Carbon neutrality by 2060

The goals for peak CO2 emissions and carbon neutrality constitute a strategic choice for the sake of humanity's future as well as for realizing the Chinese Dream of national rejuvenation. As important tasks in building a beautiful China, requisites for meeting the people's new expectations for a better life, and powerful tools for promoting high-quality development and realizing economic and social transformation, reaching peak CO2 emissions and carbon neutrality are closely related to China's development goals.

Achievements

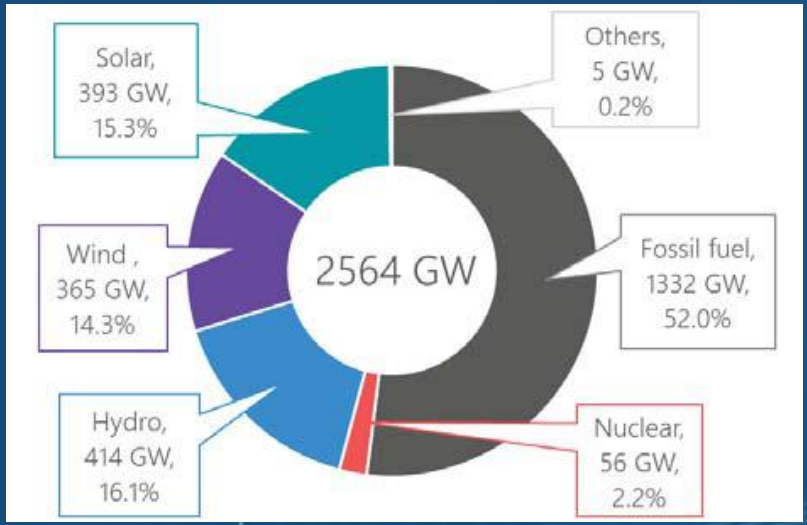




In 2023, the proportion of clean energy consumption in China will reach 26.4%, an increase of 10.9 percentage points from 2013, while the cumulative proportion of coal consumption will decrease by 12.1 percentage points. The total installed capacity of power generation reached 2.92 billion kilowatts, of which the installed capacity of clean energy power generation reached 1.7 billion kilowatts, accounting for 58.2% of the total installed capacity of power generation. The clean energy generation capacity is about 3.8 trillion kilowatt hours, accounting for 39.7% of the total power generation, an increase of about 15 percentage points from 2013. Over the past decade, the newly added clean energy generation has accounted for more than half of the total increase in electricity consumption in society.

Acheivement: RENEWABLE

Wind power and solar PV have become the main body of newly installed capacit

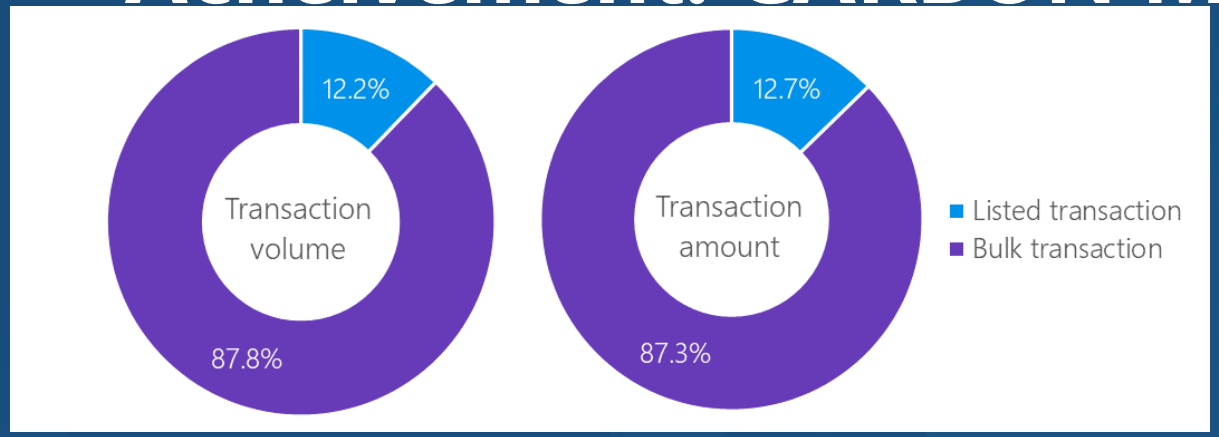


Total installed power generation capacity mix

Total installed capacity and its proportion of wind and solar power

China's total installed power generation capacity reached 2,564 GW, a year-on-year increase of 7.8%. Non-fossil energy is now nearly 50% of the total installed capacity. The total installed capacity of wind power reached 365 GW, an increase of 11.2% year-on-year; the total installed capacity of solar power was 393 GW, an increase of 28.1% year-on-year.

Acheivement: CARBON MARKET



The proportion of annual transaction volume and annual transaction amount of listed transactions and bulk transactions in the national carbon market in

The daily closing price and transaction volume of listed transactions in the national carbon market (July 16, 2021, ~ January 10, 2023)

- **Listed agreement transaction:**

The daily closing price is between 55-61.4 RMB/ton; the closing price on December 30, 2022 was 14.6% higher than the opening price on the first day of the launch of the national carbon market .

- **Bulk agreement transactions:**

the average daily transaction price is between 42.5-62.5 RMB/ton, and the annual average transaction price is 55.0 RMB/ton

POLICY FRAME

what to do:

-- **Working Guidance** for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy

how to do：

-- **the Action Plan** for Reaching Carbon Dioxide Peak Before 2030

Form the basis of China’ s climate policy framework for reaching its carbon reduction targets, known as the “1+N” policy framework.

POLICES

Targets for green energy transition

The Action Plan released in October 2021 set specific goals for the green energy transition in the coming decade, including renewable energy buildout and low carbon development of several industries, such as construction, transport, and industrial sectors. These targets aim to lay the groundwork for the country to begin reducing overall carbon emissions from 2030 onward.

POLICES

NEA proposes a timetable for the construction of the new-type power system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为全面贯彻落实党的二十大精神，积极稳妥推进碳达峰碳中和工作，加快规划建设新型能源体系，国家能源局组织有关单位编制了《新型电力系统发展蓝皮书（征求意见稿）》，现向社会公开征求意见。
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Blue Book on New-Type Power System Development

- stage1: Accelerated transition period (currently ~2030)

  New-type power system accelerates the clean and low-carbon transition
- stage2: Overall shaping period (2031~2045)

  The overall formation of a new-type power system
- stage3: Consolidation and perfection period (2046~2060)

  The new-type power system has entered a mature stage

Several opinions on Accelerating the development of digital and intelligent energy

(NEA,2023)

- For the electric power, coal, oil and gas and other industries, to achieve the integration of digital and intelligent technology application, by 2030, all aspects of the energy system digital and intelligent innovation application system, the potential of data elements fully activated, a number of common key technologies restricting the development of digital and intelligent energy breakthroughs.

The 14th Five-Year Plan for Modern energy system (NDRC, NEA,2022)

Accelerate the development of digital and intelligent energy

- **Promote the digitalization of energy infrastructure:**

carry out the intelligent upgrading of equipment, facilities and processes in power plants, power grids, oil and gas fields, oil and gas pipeline networks, oil and gas reserves, coal mines, terminal energy use and others

- **Build smart energy platforms and data centers:**

improve the data property rights protection system, strengthen the open sharing of energy data resources

- **Implement smart energy demonstration projects:**

With the support of new business forms such as multi-energy complementary clean energy bases, source-grid, charge-storage integration projects, integrated energy services, intelligent microgrids, and virtual power plants, demonstration of smart energy system technologies.

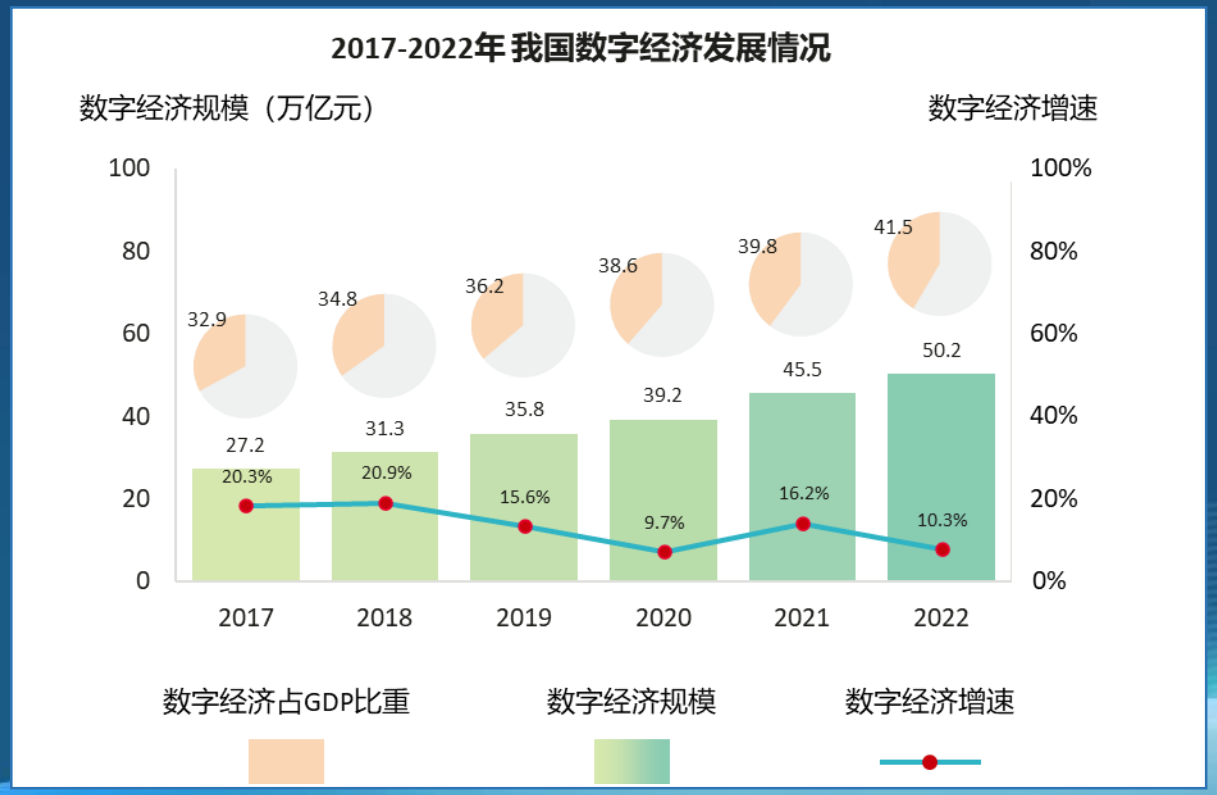
STANDARDS

Revise standard in transformer, motor for renewable energy

Update ESG, energy management **standard**

Developed green financial **standard system**

• Digitalization for Transition



Dititial Transition with Digital Economy

In the process of digital transformation, the application of new technologies is not the goal. The fundamental purpose of transformation is to enhance the competitiveness of products and services, allowing enterprises to gain greater competitive advantages.

- **Digitalization for Transition**

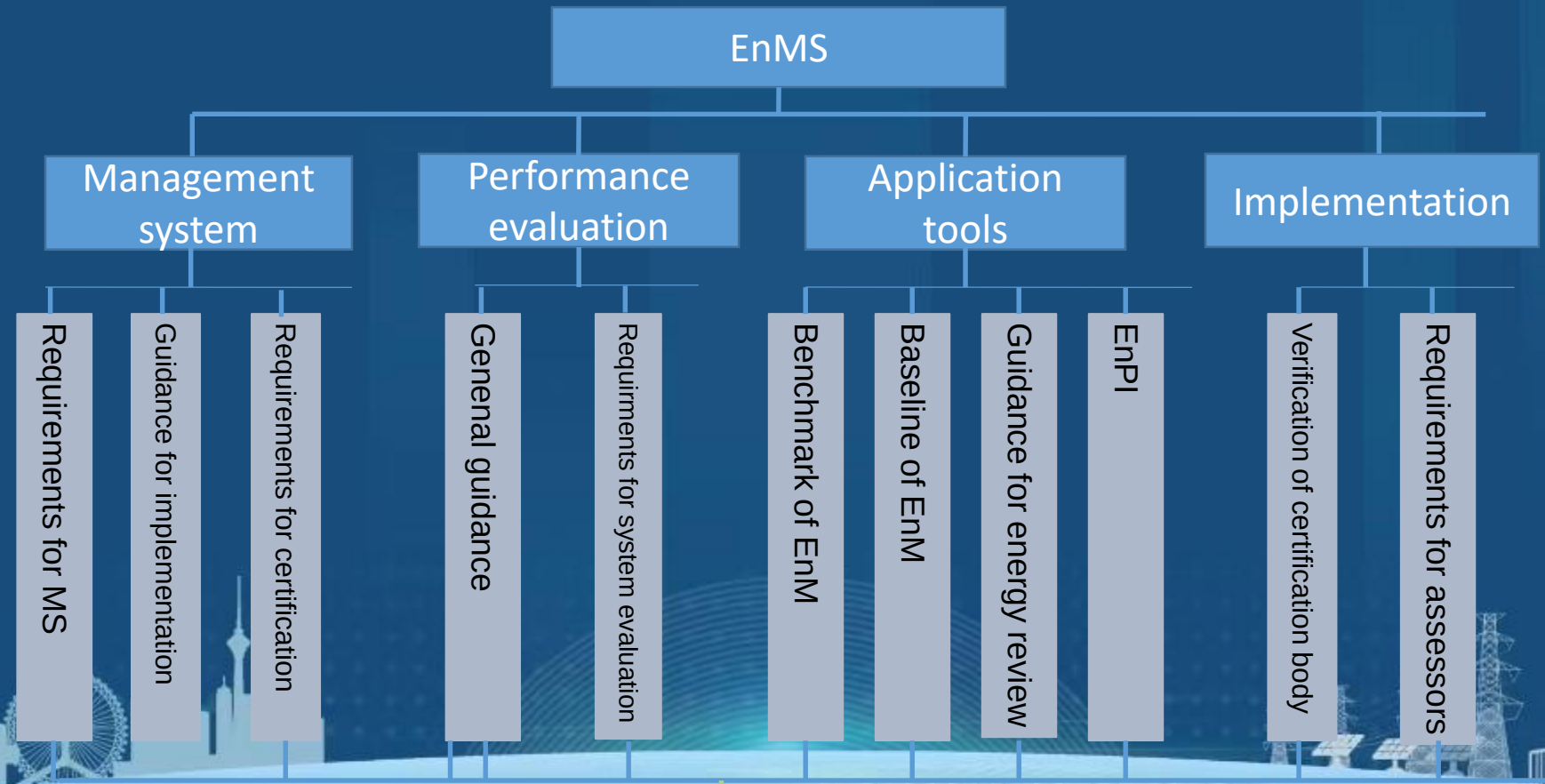
Digitalization with Energy supply side + Demand side

The transition from traditional fossil energy system to smart integrated energy system is being developed rapidly in China by taking wind, solar, biomass and other new energies as mainstays while fossil fuels will serve as supplements, multi-energy resources, different energy subsystems and technologies are integrated by means of digital technology, standards are being developed rapidly.

- **EnMS Promotion**

The importance of energy management is reflected in ensuring the stability of energy supply, improving energy utilization efficiency, and promoting sustainable economic development. Energy management not only has a profound impact on society, economy, and environment, but also promotes energy structure transformation, enhances energy security, reduces energy costs, increases competitiveness, reduces greenhouse gas emissions, and protects the ecological environment. Therefore, strengthening energy management and achieving sustainable development are important tasks in today's society.

• EnMS Implementation



Three Pillars of Energy Transition in China

- **P**olicies and **S**tandards
- **D**igital Transformation
- **E**nergy **M**anagement and **S**ystem

EGEEC 63 Theme:

Energy Efficiency and Energy Management: Accelerating the energy transition for a sustainable future

THANK YOU