

IEA Bioenergy ExCo86 e-Workshop
Part 2: Biomass in energy intensive industries – steel & cement sectors
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Biomass in China industry

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OUTLINE



Background

Status

Utilization of biomass in industry

Obstacles & challenges

Conclusion

I. Background

Green and low-carbon development has become a global consensus.

China's goal: carbon neutral by 2060.

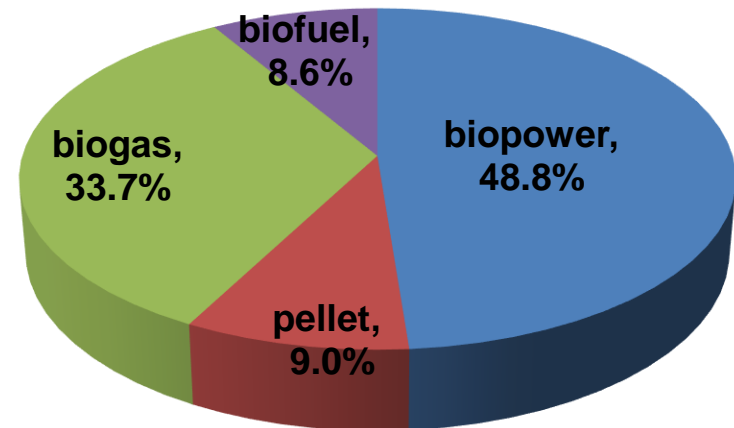


II. Current status of bioenergy

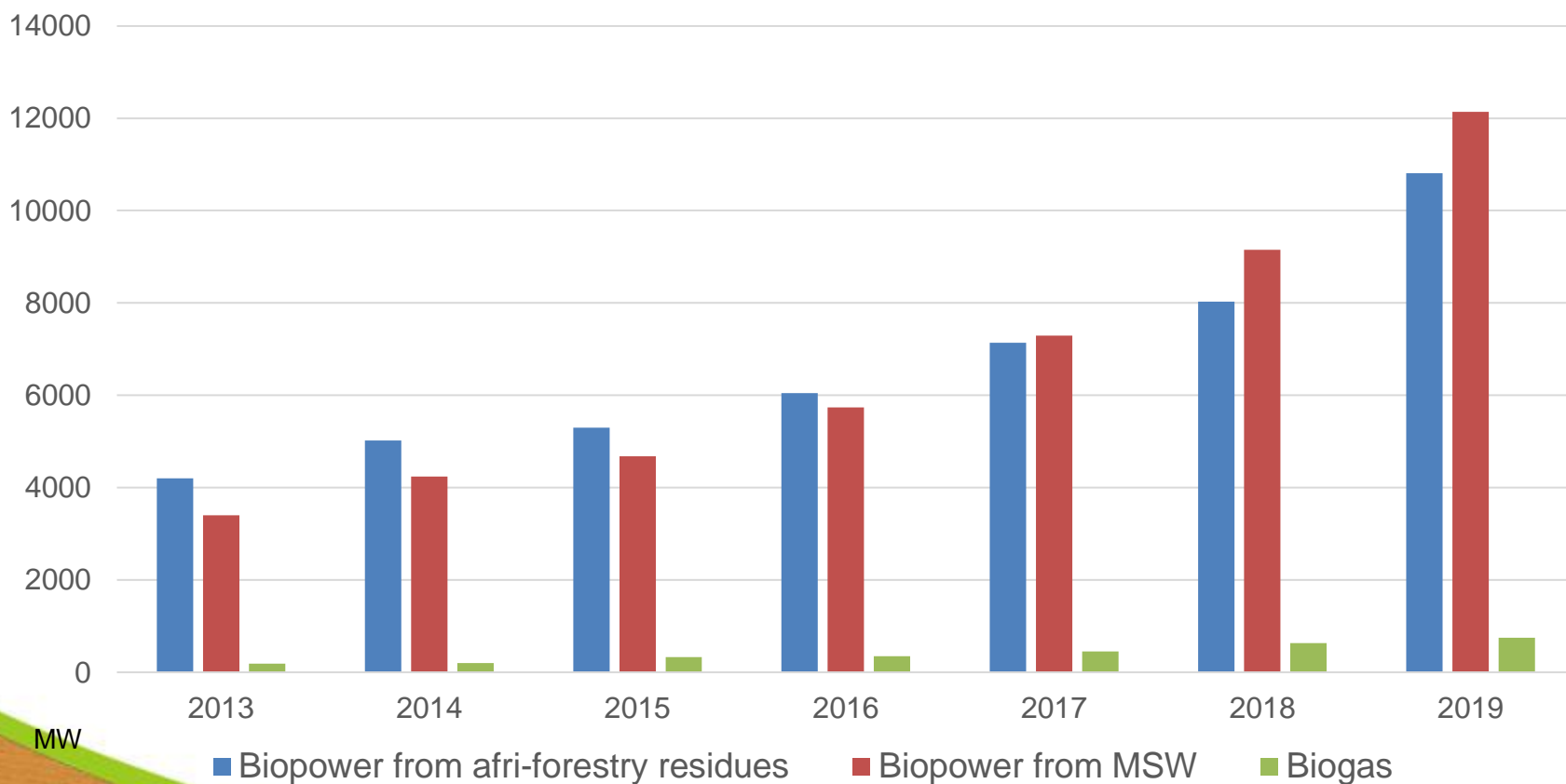
- Bioenergy utilization about 57 million tce, about 1.2% of total energy consumption in 2019.



**Types of bioenergy
-share of total bioenergy**



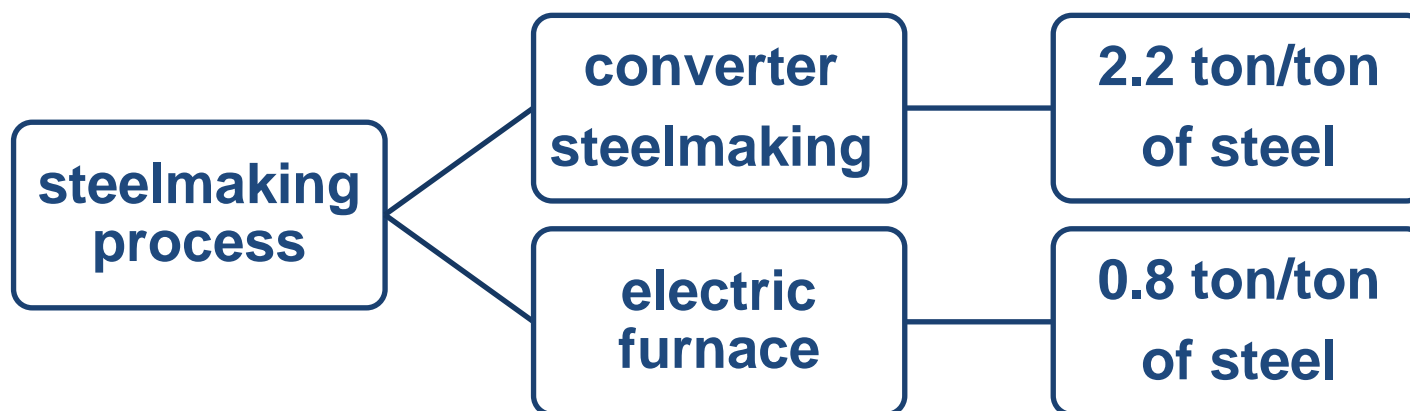
Biopower installed capacity in 2019



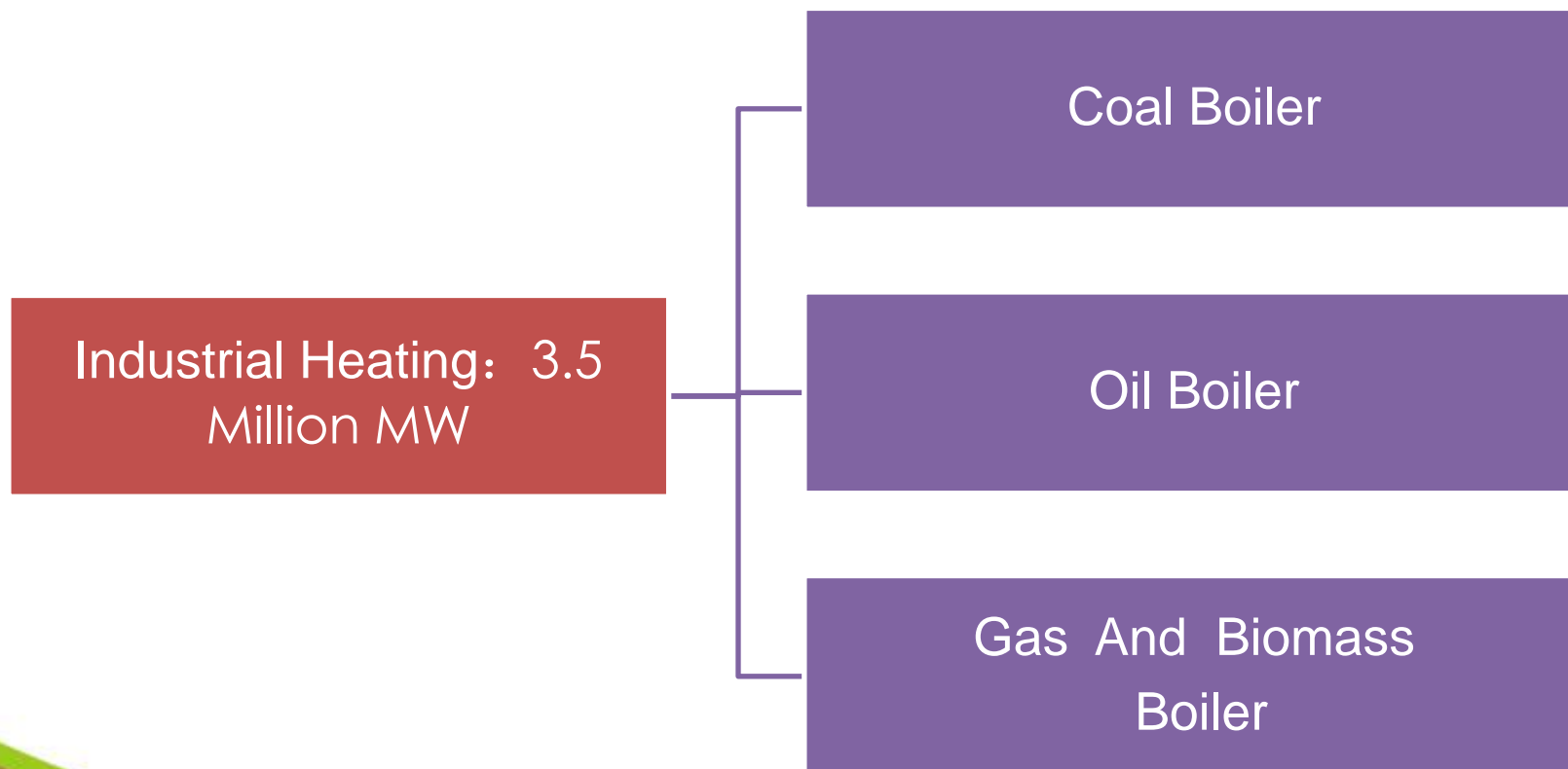
III. Utilization of biomass in industry

China's steel industry

- crude steel: 1 billion tones
- 53% of global steel
- 14% of China's total carbon emissions

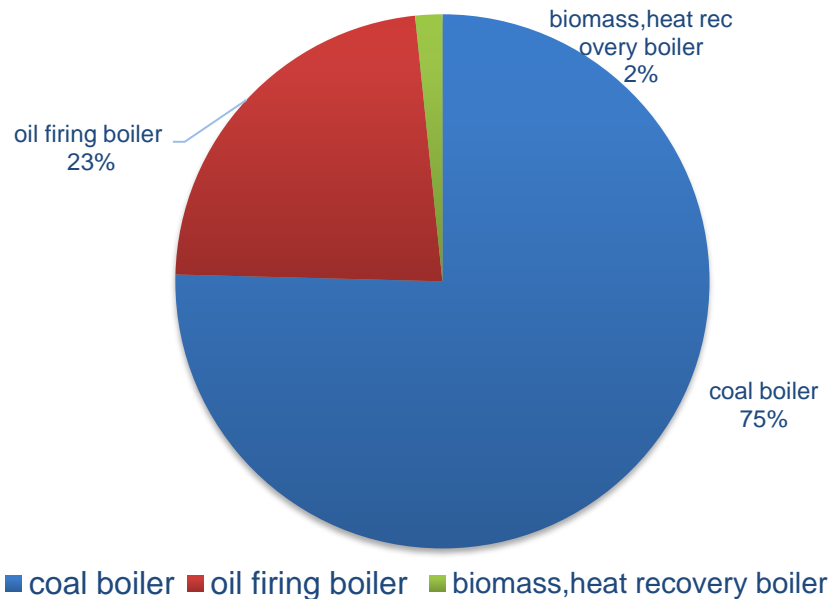


Industrial Heating



Industrial Heating

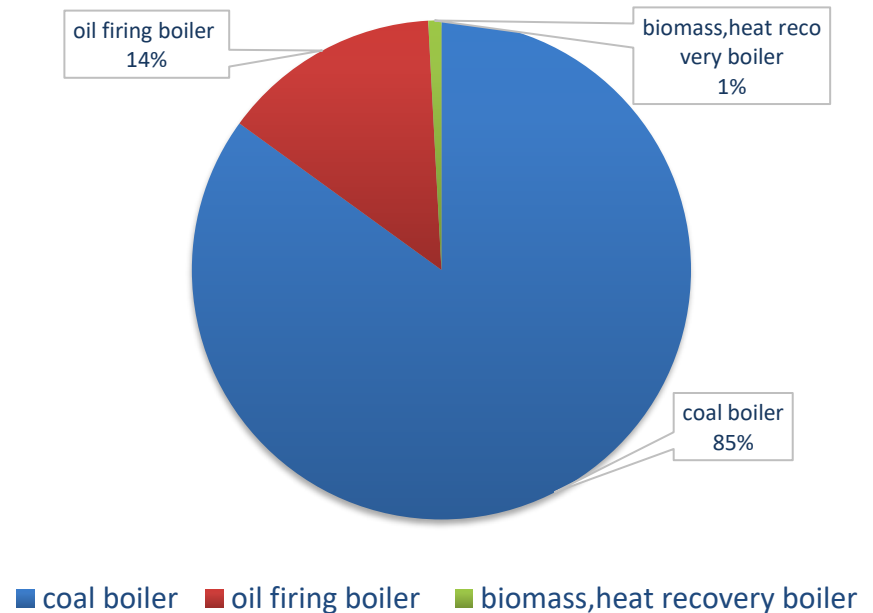
The number of industrial boiler



Alternative potential of industrial boiler

- **Total capacity: 3.5 Million MW**
- **Average capacity: 3.8 ton vapor/h, under 2 ton vapor/h accounted 66.5%**

The share of industrial boiler capacity



Case Study

- **Biomass Co-firing projects**
- Year of implementation: 2012, 2018
- Capacity: 10.8MW
- Agricultural residue: 56,000 ton/a
- Technology: Gasification
- Electricity: 75,600 MWh/a
- CO₂ emission reduction: 74,000 ton/a
- Location: Jingmen, Xiangyang, Hubei province.



Bamboo sawdust gasification

- Year of implementation: 2018
- Feedstocks: Bamboo sawdust 32,000 ton/a
- Capacity: 7MW boiler
- Production: Steam combined charcoal
- CO₂ emission reduction: 23,000 ton/a
- Location: Anji, Zhejiang province



Biomass replaces heavy oil for steel rolling

- Year of implementation: 2010
- Fuel: wood pellets
- The type of boiler: CFB
- Heating temperature: 1200°C -1300°C
- Location: Shenzhen, Guangdong province



IV. Obstacles & challenges

The utilization rate of raw material collection needs to be improved

It is difficult for intensive industries (steel industry) to completely adopt biomass energy as an alternative fuel;

The cost of new biomass products (such as biomethane, hydrogen, etc.) is still high in the near and medium term.

The amount of biomass energy replacing fossil energy is limited

Impact of electrification on bioenergy utilization.

V. Conclusion

Carbon neutrality by 2060 is a great opportunity for the bioenergy.

The demand for energy conservation and emission reduction in the industrial sector provides a huge market for bioenergy.

Assessment of biomass availability and effective collection capacity are critical.

The promotion of bioenergy in the industrial field still needs to initiate from strengthening the awareness of the authorities on the priority use of the bioenergy.

To improve the economic competitiveness of bioenergy and evaluate the optimal scale and technical path, so as to identify an effective alternative model for biomass under economic scale.

Actively explore BECCUS, strengthen international cooperation, and contribute to achieve carbon neutral goals.

**Thank you
for attention !**