A Review on Applications of Coal Fly Ash in China

--policy and technology

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Outline

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Policies system in China
Comprehensive applications approach
Roadmap of application
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INTRODUCTION
Distribution of coal consumption worldwide in 2012

China consumed high prices and natural gas and more coal-fired generation. Consequently, China is the world's largest coal consumer, accounting for 50.2% of world coal consumption in 2012.
Energy consumption in China in 2012

- Coal: 68.49%
- Oil: 17.68%
- Gas: 4.73%
- Hydro: 7.12%
- Renewables: 1.17%

49% of the total energy consumption in China in 2012.
coal amount in China

Year


Coal amount (Billion tons)

2.47 2.65 2.75 3.05 3.24 3.52 3.66 3.70 3.87 4.0
Thermal power installed capacity in China

Thermal power installed capacity (Million kw)

Year

2006 2007 2008 2009 2010 2011 2012 2013 2014

484.05 554.42 602.85 652.05 706.63 765.46 819.17 862.38 915.69

2006, it increased from 602.85 million kw. It has been increasing every year.
In 2005, the thermal power generation in China was 2,047.30 billion kwh. It grew steadily until 2014, reaching 4,233.70 billion kwh. The data shows a consistent increase from 2005 to 2014.
PART 2

Policies in China
The principle of policy system

- Multiple comprehensive utilization
- Encouraging policy
- Market orientation
- Technology promotion
- The participance of whole society
- Dynamic adjustment
The notice on carrying out the further comprehensive utilization of resources (the central government) No. 36 (issued in 1996)
The list of Comprehensive utilization of resources (issued in 1996, modified in 2003)
Circular Economy Promotion Law (implemented in 2002)
Cleaner Production Promotion Law (implemented in 2009)
Measures on the comprehensive utilization of fly ash (2013)
the features of Measures on the comprehensive utilization of fly ash (2013)

- confirming the concept of fly ash including fly ash from precipitator and also from boiler bottom
- the whole process management
- clarifying the responsibilities of the management department much further
- Establishing comprehensive utilization planning in the province respectively
- In accordance with the current laws and regulations
COMPREHENSIVE APPLICATION APPROACH
Fly ash comprehensive utilization

• Soil amelioration
• Construction industry
• Ceramic industry
• Catalysis
• Environmental protection
• Depth separation
• Zeolite synthesis
• Valuable metal recovery
fly ash concrete
fly ash bricks
Treatment of fly ash
fly ash
segregated
concrete
block
production
line
Textured concrete blocks
Roadmap of Utilization
The added value of different modes should concern two points: First, the growing trend of identified as key applications is cement and concrete, mine reclamation, bricks and tiles, and road and embankment, and so be retained. Second, in addition to the first, underutilized large potential applications should be explored.
Challenges and Opportunities
China is a big country. In winter constructions are ceased. Fly ash is stored at ash storage yard in the Northern area. On the other hand in the South, the situation is very optimistic.
challenge 02

The fly ash amount is ascending while frastructure construction is descending.
challenge 03

There is a big gap between the eastern and western area because of the unbalance development of them.
opportunities

new technology and high-value-added products

We have a lot of opportunities. If we have new technology or have high value added products. Most reported methods are still in the early stages of commercialization. Further studies are needed to turn this research into commercial reality.
THANKS FOR YOUR ATTENTION!