

Impact of new emission regulations on related industries of China

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main Points

- ❑ Increasing Chinese market
- ❑ Brief of new emission regulations
- ❑ Challenges and opportunities
- ❑ Actions we will take



The Growing Chinese market

□ Growing Chinese shipbuilding industry

(million DWT)

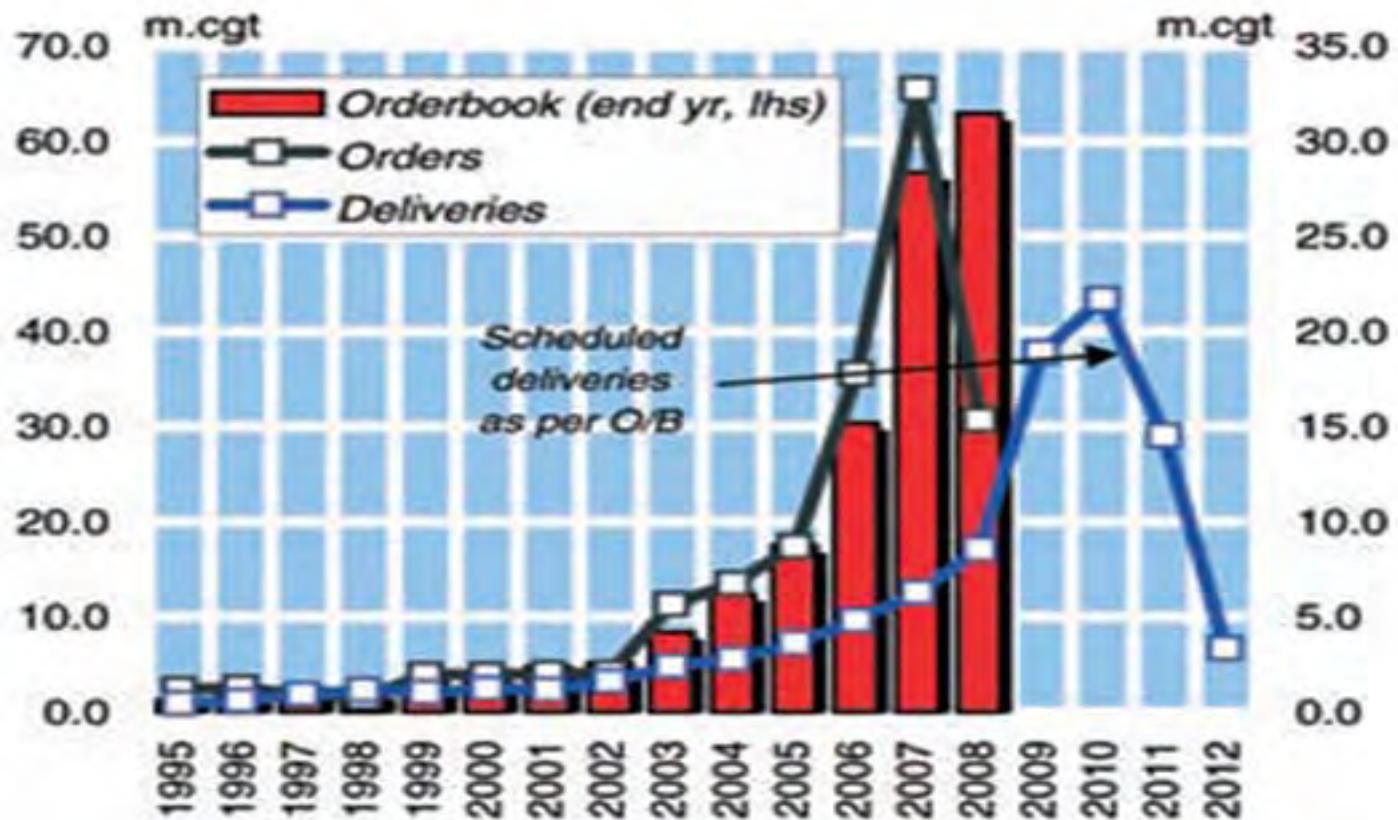
Year	Deliveries	Orders	Order book (end of year)
2005	12.12	16.99	39.63
2006	14.52	42.51	68.72
2007	19.83	98.45	158.89
2008	28.81	58.18	204.60

Source: China association of the national shipbuilding industry

In 2008, the deliveries, order intake and order book account correspondingly for 29.5%, 37.7% and 35.5% of the world market.

The Growing Chinese market

□ Chinese shipbuilding trends



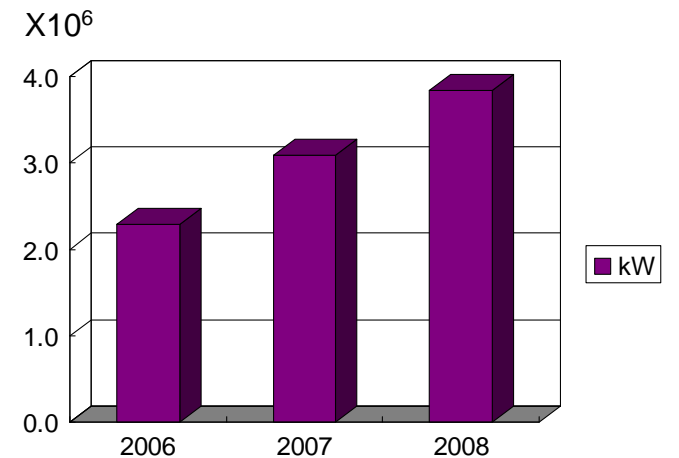
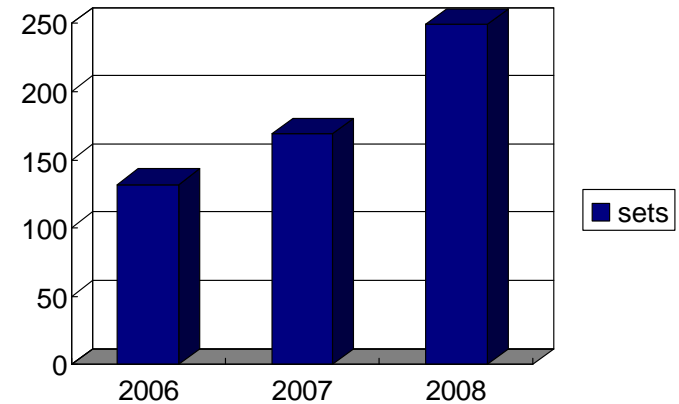
Source: Clarkson Research Services



The Growing Chinese market

□ Growing Chinese engine industry

Year	Production volume	
	sets	million kW
2006	132	2.29
2007	169	3.09
2008	249	3.84



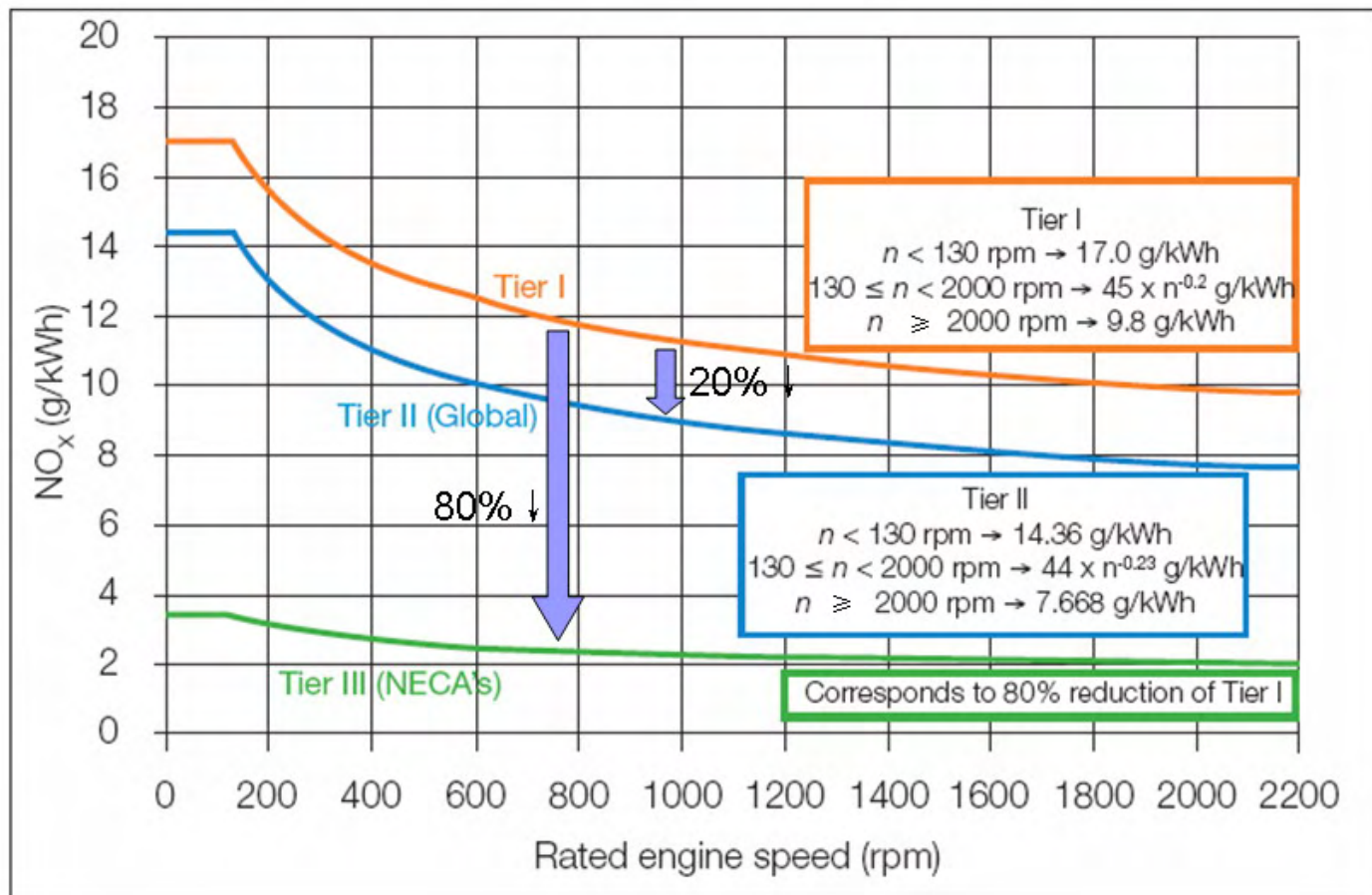


The Growing Chinese market

- China has become a big country both in shipbuilding and engine industries
 - Fast growth and big market share
 - Big production capacity
- but is not strong yet
 - Key technologies dependent on foreign countries
 - Immature supply chain
 - Efficiency of production is not so high

IMO's limits for emissions

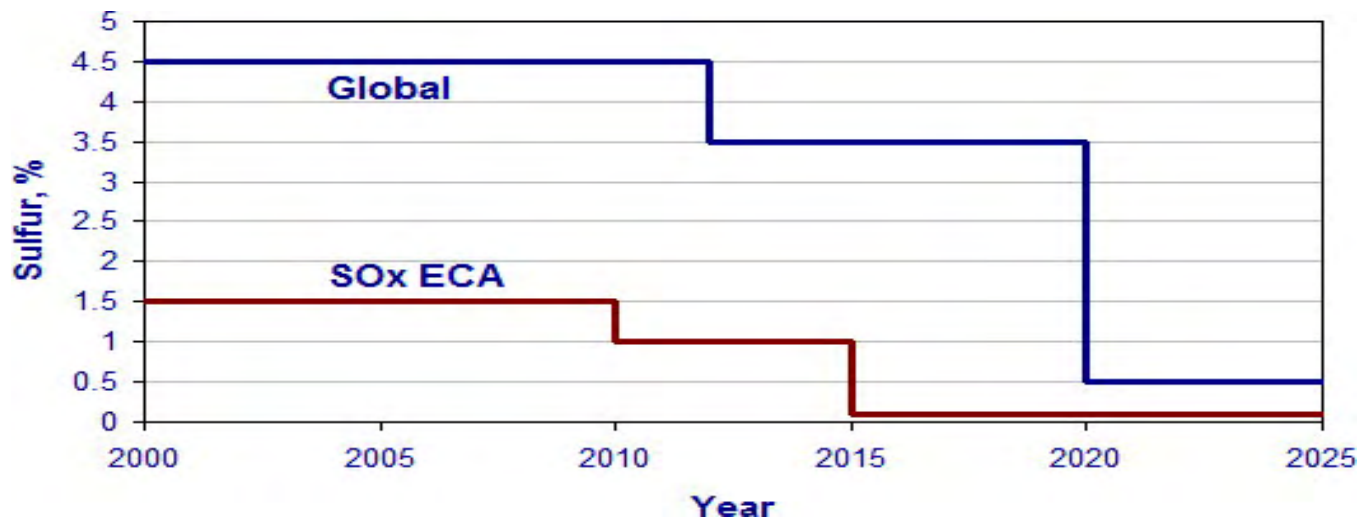
□ IMO's limits for NO_x



IMO's limits for emissions

□ SO_x , is based on Sulfur content in fuel

- For SECA:
 - before 2010, S < 1.5%
 - before 2020, S < 1%
 - after 2020, S < 0.1%
- For the other areas:
 - before 2012, S < 4.5%
 - before 2020, S < 3.5%
 - after 2020, S < 0.5%





IMO's limits for emissions

- ❑ CO² emission limits: At MEPC 58 the CO² design index was renamed in Energy Efficient Design Index (EEDI), and formed a index formula
- ❑ On the Copenhagen World Climate Summit next week, IMO will propose EEDI to the member states to come forward to implement it and it would be compulsory implemented by 2011/2012.
- ❑ The developed countries are willing to carry out EEDI in 2010, and promote it around the world after achieving some application success.

Challenges China is facing

1
For licensed engines :
technical upgrading



4
marine fuel quality
improvement may
result in the
increasing of cost

CHALLENGES

2
For the domestic
marine engines :
technical solutions
with lower cost

3
For marine power
systems :
a better solutions
for energy saving





Opportunities

- ❑ We should pay more attention to develop emission control technology rather than expansion of production capacity to achieve the coordinated development of the industries.
- ❑ We should speed up eliminating backward production capacity and improving efficiency of industry operation to reach the goal of energy-saving and emission reduction in the whole engine industry.



Chinese government is active

- ❑ Take common but differentiated responsibilities.
- ❑ have already set an aggressive goal for control greenhouse gas emission by 2020 and propose appropriate policy moves for its attainment.
- ❑ Try to carry out IMO regulations directly and solve the environmental problems together with other countries.
- ❑ Provide funding to universities and institutes for researching technical solutions.



Conclusion

- ❑ Energy-saving emission reduction policies have brought big challenges to the related industries of China, but also provides them with opportunities.
- ❑ The Chinese government, the industries and academic circles are all actively participating the effort to meet the challenges we are facing.
- ❑ We are on the way although there is still a long way to go. We will take up our responsibility together with the international community to save energy and reduce emissions.

Thank you for your attention!