



MITIGATION OF CO₂ IN CHINA – SHIPBUILDING AND USAGE OF VESSELS

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INTRODUCTION

These Tekes Future Watch Report presentation slides address business opportunities and situation in shipbuilding and usage of vessels related to mitigation of CO₂ in China.

There is illustrated the situation of Mainland China in building and using not only seagoing vessels, but also vessels to be used at inland waterways and for coastal navigation in China.

Special attention has also been given to electrification of ships and port structures, its present stage and future foreseen real-life developments.

Some topics reported herein will become more focused and explicit once China will approve its final 13th five-year plan in March 2016.

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Your management extension in China

SHIPBUILDING IN EAST ASIA

- Major reshuffle in act
 - Difficulties in offshore oil & gas produce layoffs and other restructuring efforts
- WTO: “Japan and South-Korea business model: export out - protect in”; appears to be especially true in Japan
- Order stock situation: South-Korea 26,4M DWT, China & Japan 23,4M DWT each

Status of September 2015

IMPLEMENTATION SCHEME ON SHIPPING POLLUTION PREVENTION ACCORDING CHINESE MINISTRY OF TRANSPORTATION

- New-built vessels
 - Enforce newly revised standards in relation to emission of shipping pollutants
 - Coastal vessels set to be put in use in 2018
 - Inland vessels set to be put in use in 2021
- Vessels in-use
 - Equip or modify related facilities and equipment
 - Equipping or modifying of related facilities and equipment on ships that have failed to meet the newly revised standards in relation to emission of shipping pollutants should be accomplished by the end of 2020.
 - If ships fail to meet requirements after modification by the end of 2020, they should be obsoleted within a given time limit.

Targets for implementation, status of September 2015

MARKET OPPORTUNITY FOR NEW-BUILT SHIPS AND SHIPS TO BE RETROFITTED FOR INLAND USAGE

- 172.554 units of civil transport vessels in operation in China (2013)
- “30.000 vessels below 7 years of vessel age, which satisfy dual-engine retrofit conditions”
- In-use vessels 2015-2020 - 32.000 vessels to be scrapped
- New-builds 2015-2020 - 28.000 vessels for inland usage
 - 300-3.000 of the a.m. vessels to be installed with LNG and LNG dual fuel engine
 - Net dead weight of fleet supposed to increase 3.6-10.4% annually
- Some pilots and integrators on electrical propulsion; no significance in near future, unless improved technology and helping shipping companies to make more money

Targets for implementation, status of September 2015

AREAS FOR EMISSION CONTROL STILL TO BE DEFINITELY ESTABLISHED AND ENFORCED IN MAINLAND CHINA ACCORDING CHINESE MINISTRY OF TRANSPORTATION

- Working towards future ECAs' in China: Bohai Bay Rim; Yangtze River; Pearl River Delta; sulphur content level for fuels Stage III 2020-2024 at 0.5%
- Status of fuels currently catastrophically low (Sinopec presentation September 2015) so implementation of emission controls remain a question mark (“...producing heavy marine fuels with non-conventional petroleum components, mainly shale oil, FCC flurry, asphalt, tar, animal and plant oils, and waste engine and tire oil, to bring down cost...”)
- Usage of LNG and LNG dual fuel motors and Cold ironing hot topics in 2015; LNG bunkering stations available already at
 - Jing Hang Canal (Hangzhou – Beijing)
 - Yangtze River between Wuhu-Nanjing and Wuhu-Wuhan

Targets for implementation, status of September 2015

GASIFICATION OF
CHINA IN ACT AND
FOCUSING MOST ON
FIGHTING THE SMALL
PARTICLES, SILK ROAD
INITIATIVE OF CHINESE
GOVERNMENT
BUILDING MORE
IMPETUS ON
GASIFICATION TO TAKE
PLACE

- Urbanization proceeds in China, so will also consumption of energy including coal; attention on small particles
- Silk Road to guarantee supply of LNG and oil and improving safety and peace between Duisburg in Germany and Kashgar in West China (“1+2+3”)
- Shipbuilding working actively also towards usage of LNG and LNG dual fuel motors. Especially Inland Water Maritime Authorities push towards usage of LNG, whilst Maritime Authorities for coastal and ocean-going navigation more cautious for obvious reasons

Status of September 2015

COLD IRONING GROWING IN CHINA

- Shore power is to be implemented in 70% of the ports on the east coast by 2020
- Ports are co-owned by Central and local governments; some ports having private owners with minority shares
- Shore power from quay to ships' shore connection boxes is provided by **State Grid Corporation of China**, which will be the main actor on the whole territory, having sole right to invoice electricity
- City of Shenzhen leading the trend; Shanghai will probably closely follow
 - Shenzhen putting yearly about 29 MEUR on promotion of shore power and low-sulphur fuels
 - Seven of the world's ten busiest container ports in China (Shanghai, Shenzhen, Hong Kong, Ningbo-Zhoushan, Qingdao, Guangzhou, Tianjin)

Targets for implementation, status of September 2015

INTERNET OF THINGS AND CHINA GOING DIGITAL

- Chinese e-commerce and internet giants (Alibaba, Tencent, Baidu, other) have focused up till now on B2C. Alibaba has in the past had activity in B2B and the results are as follows:
 - Alibaba “E-shipping” forming strategic alliance with China Shipping and introduced 100.000+ trading companies to facilitate booking and charting information flow for improved cargo business
 - COSCO having similar service called Epanasia
- Ministry of Transportation in September focusing on “Internet of Ships” with improved control of the current fleet and its movement; Silk Road to promote “Digital Silk Road” and Chinese digital service presence abroad

Targets for implementation, status of September 2015

FINNISH COMPANIES ENTERING CHINA – SUCCESS CASES TEACHING US

- Homework to be done –
 - “If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.” (Sunzi, Art of War)
- You do not have to be Wärtsilä to make JV
- Steps typically:
 - Market understanding (size, segmentation, characteristics, competition)
 - Testing your offering and learning about competition
 - Making China Business plan
 - Building yourself brand equity (truly local approach)
 - Partnering (legal contracts, concrete sales plans with profit-sharing schemes)
 - Learn to sell to Asian customers, too (“fit-for-purpose”)

About market entry in China

MY VISION 2025

- Gasification of China has been completed; new-built ships will increasingly use LNG and LNG dual fuel engines to fight small particles pollution
- Emissions of GHG are not vigorously enforced on Inland waterways or in coastal navigation in China; more attention to small particles in tier-1 and tier-2 cities
- Electrification of major ports is completed; electricity is at quay and available for ships' shore power boxes
- Harbour structures will be increasingly automated (competition, new types of ships, other)
- Those Finnish companies establishing themselves in China will have opportunity for success in case the Asian agility will be adopted and we also learn to serve local and Asian shipbuilders and owners

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