绿色港口引领上海港可持续发展
Green Port Leading Sustainable Development of Shanghai Port

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1 The Importance of Green Development of Port and Shipping Industry

80%

Ships carry more than 80% of global trade volume

1/4

Transportation accounts for about 1/4 of the global carbon emissions of various industries

IMO Objectives

Strategic objective: International shipping greenhouse gas emissions peak as soon as possible and, taking into account different national conditions, achieve net-zero emissions around 2050.

Short-term objective: By 2030, the annual greenhouse gas emissions from international shipping will be reduced by at least 20% compared with 2008, or by 30% with the most effort.

Objective for the use of alternative fuels: By 2030, the use of technologies, fuels and energy sources with zero or near zero greenhouse gas emissions shall account for at least 5%, or 10% at the most ideal condition.

High-altitude container area-crossing isolated conductor rail

Modification of Lithium Battery Diesel Hybrid Power for Tire Crane

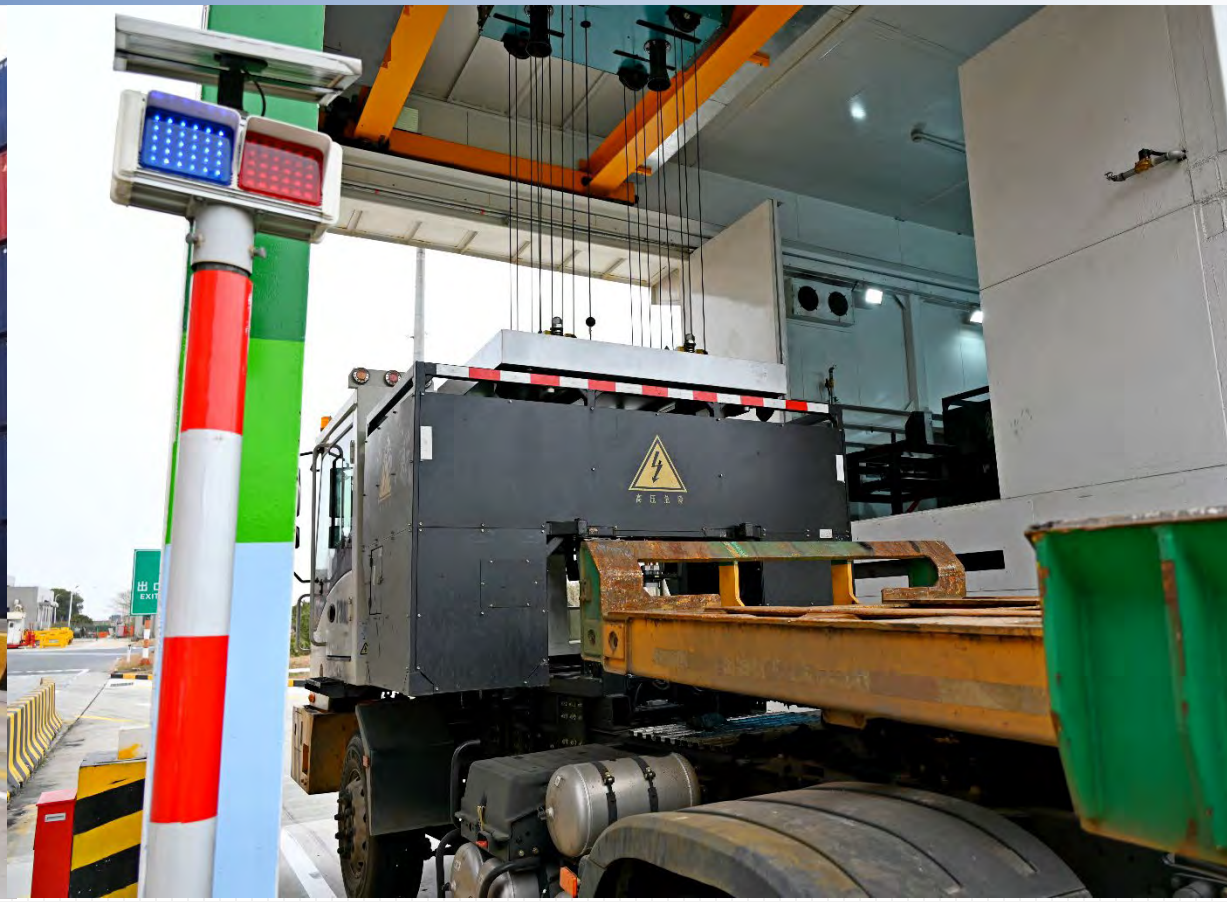
2 Shanghai Green Port Construction Practice| Restructure of the Port Energy Consumption

LNG filling station in the port area

Internal LNG container truck

2 Shanghai Green Port Construction Practice| Restructure of the Port Energy Consumption

Power swap station for internal container truck



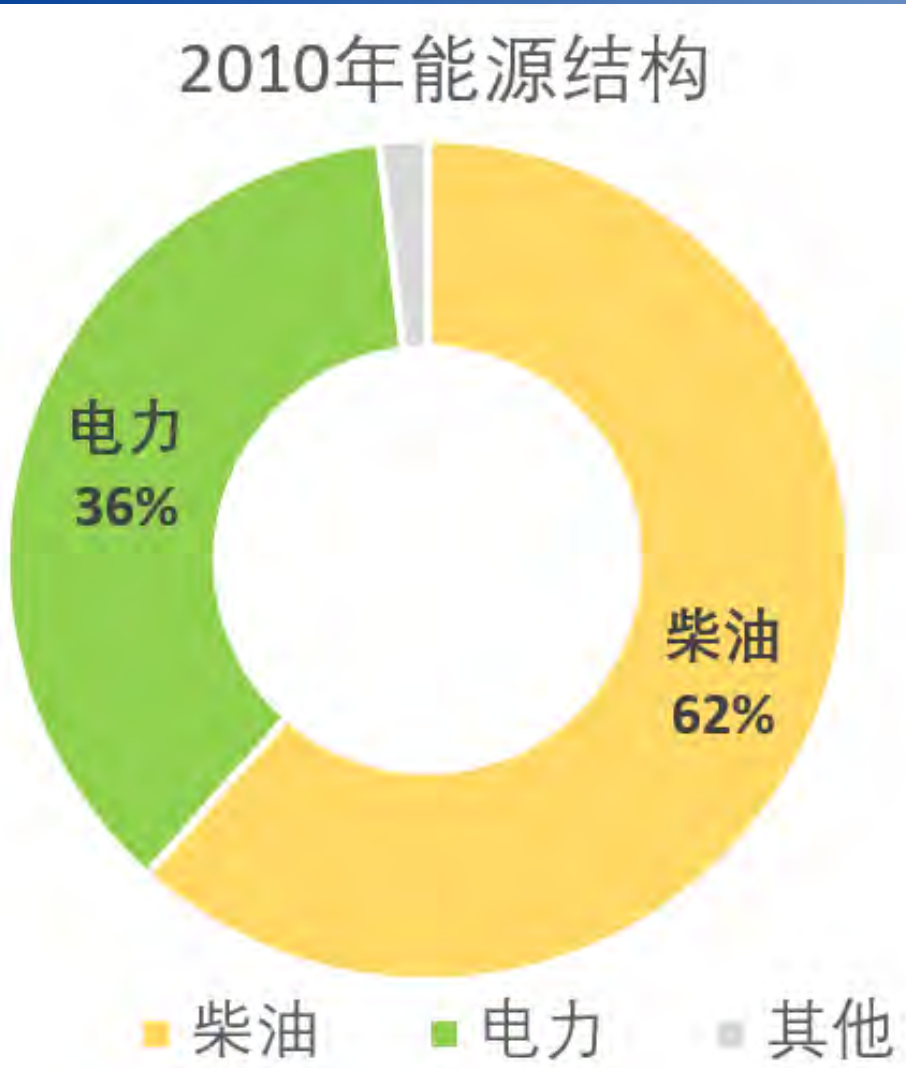
Power swapping operation for internal container truck

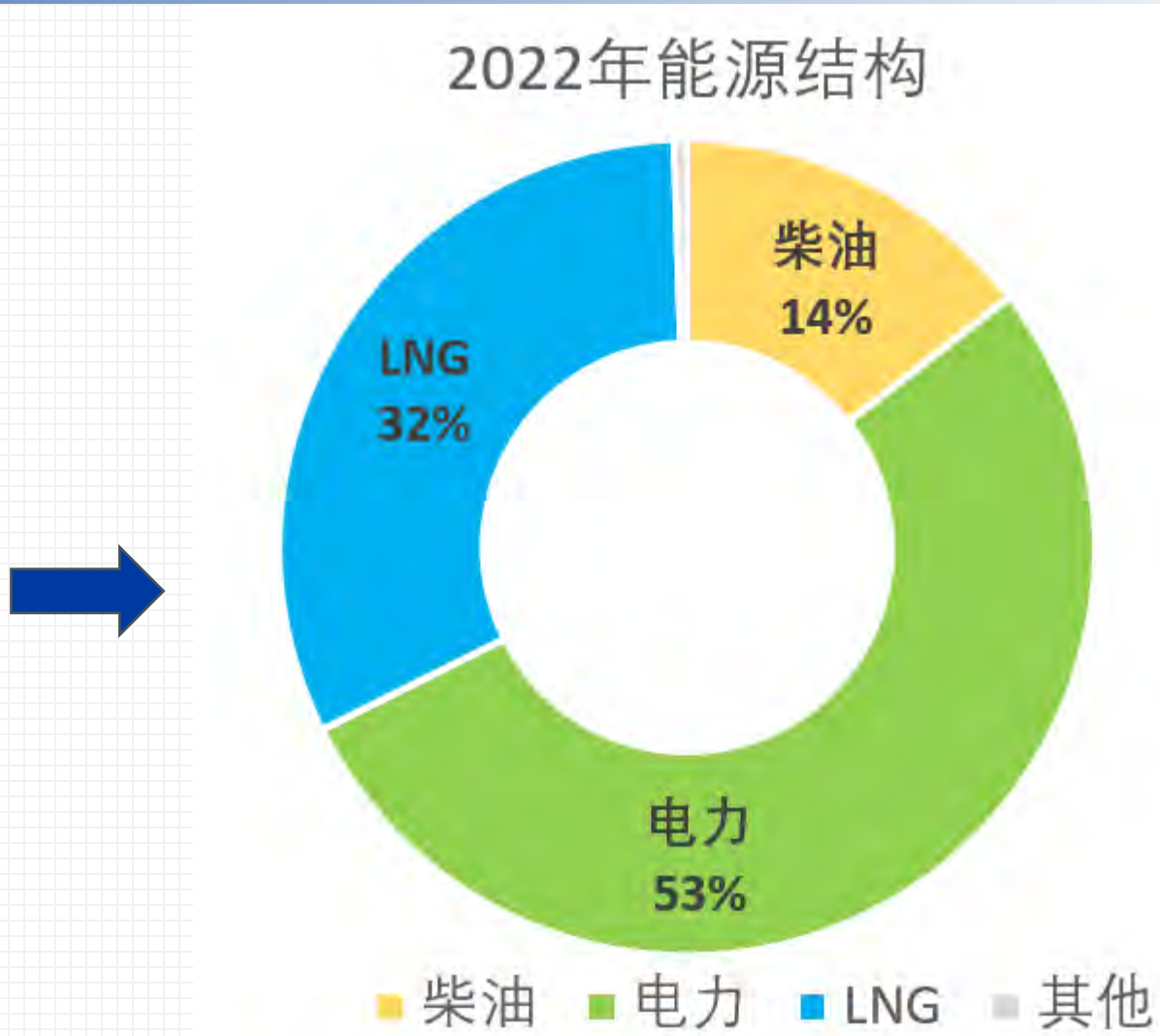
Yangshan Phase IV Fully Automated Port Area-Full Electrification of Loading and Unloading Equipment

2 Shanghai Green Port Construction Practice| Restructure of the Port Energy Consumption

Roof photovoltaic of warehouse in port area

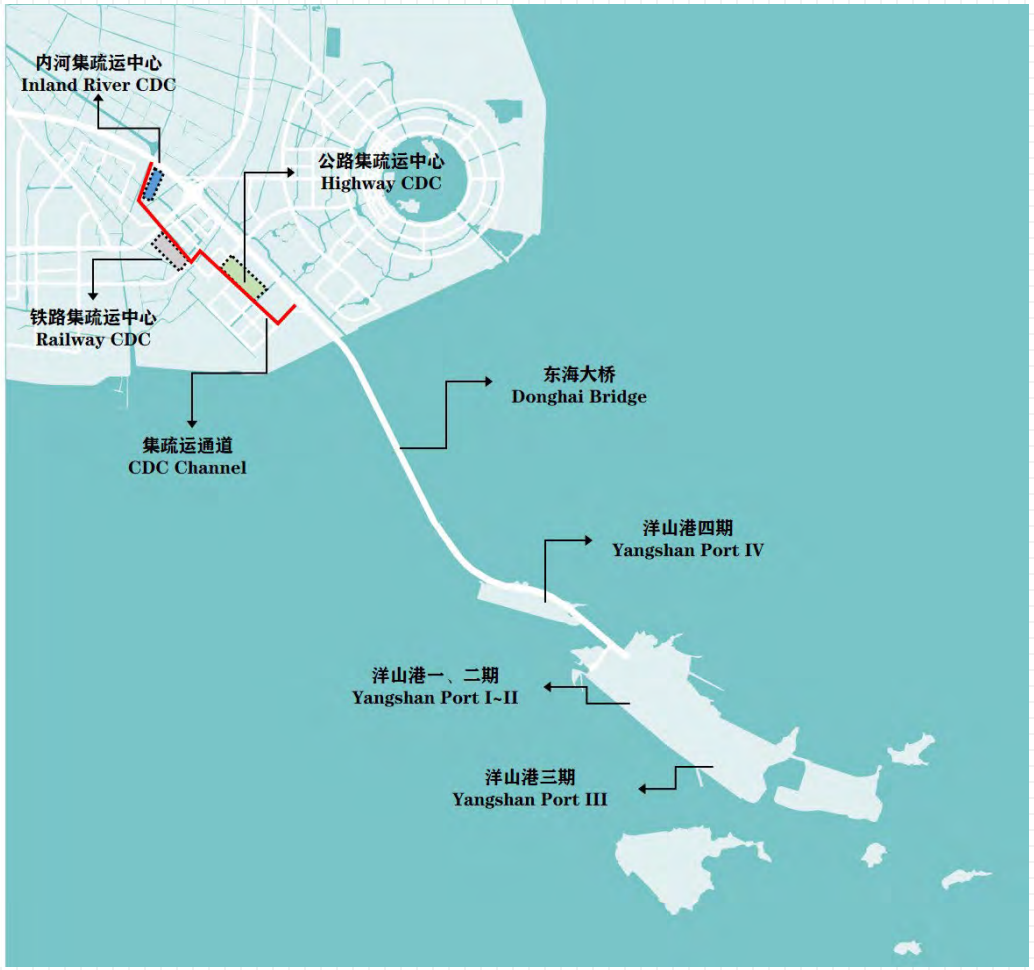
Roof photovoltaic of the office building in the port area

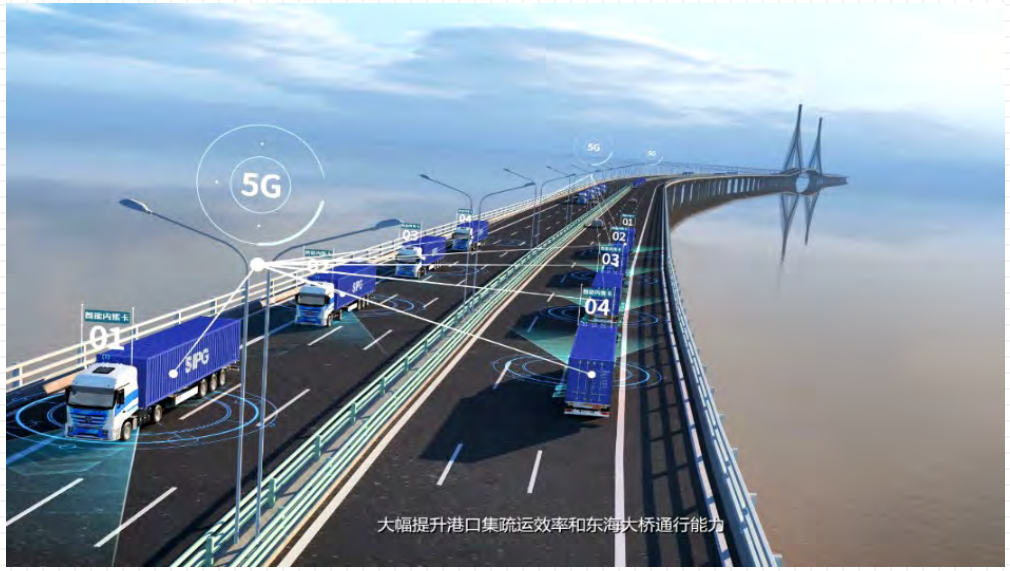

2010年能源结构
电力
36%
柴油
62%
柴油
电力
其他

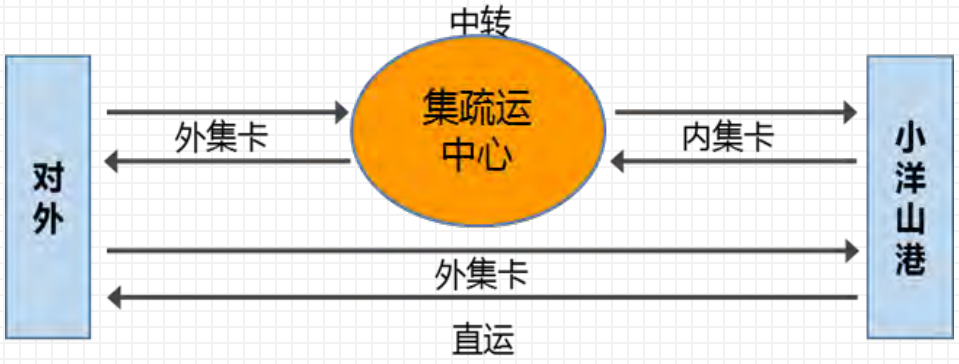

2022年能源结构
柴油
14%
LNG
32%
电力
53%
柴油
电力
LNG
其他

Schematic Diagram of Shanghai Port Collecting And Dispatching System

Yangshan Port Water, Highway and Railway Collecting and Dispatching Center







提升东海大桥及洋山港通过能力
数字化智能集卡规模化运营
分布式智慧能源系统
太仓
集疏运中心
东海大桥
独山
洋山深水港

2 Shanghai Green Port Construction Practice| Optimization of Port Collecting and Dispatching System

Yangshan Port Water, Highway and Railway Collecting and Dispatching Center (Double-layer operation process of full-automatic rail crane + automatic driving intelligent truck)

Automatic drive intelligent truck team

Shore-based power supply and transformation equipment

Shore-based power supply and ship connection operation

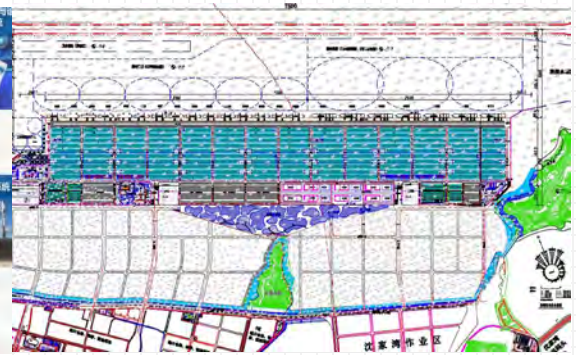
LNGPOWERED
CMA CGM SYMI
LNGPOWERED
LNGPOWERED
SAFETY FIRST
NO SMOKING

Los Angeles Long Beach Harbor

Shanghai Yangshan Port

Port of Hamburg

3 Projections on Future Ports | Green and Intelligent



Comprehensive monitoring

——Correlation and Interaction

—— Internet of Things

—— Equipment Management

Artificial Intelligence

——Intelligent Equipment

——Intelligent Dispatching

Green Energizing

——Integrated development of mixed energy

——Green energy services

Intelligent self-learning mechanical equipment

Mechanical equipment automatic operation

Dynamic and error-tolerant port dispatching

The system can develop solutions to problems with automatic real-time feedback

All-round monitoring combining digital and physic technology

Data integration and whole-process perception of port entities' data

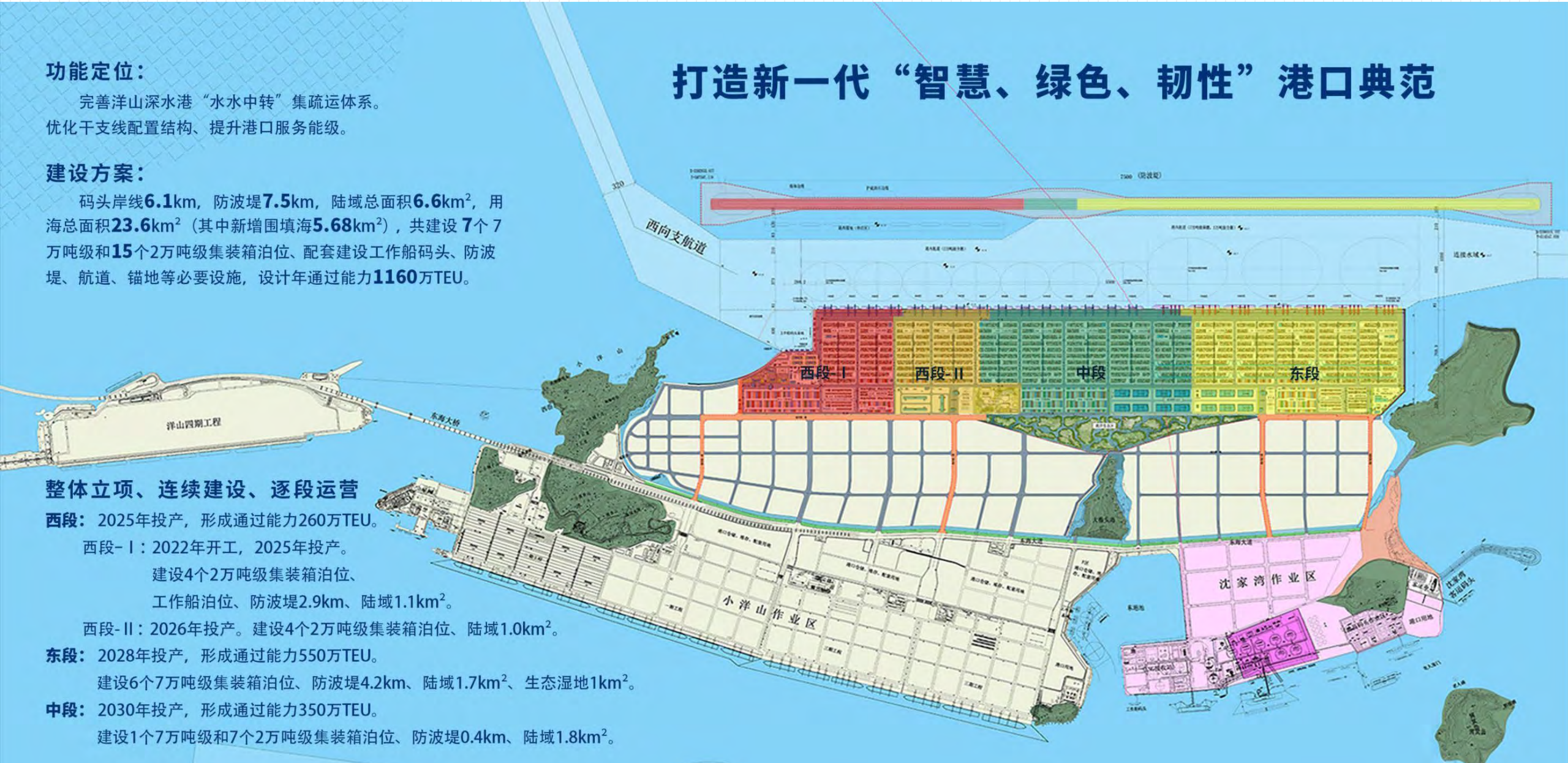
打造新一代“智慧、绿色、韧性”港口典范

功能定位：

完善洋山深水港“水水中转”集疏运体系。优化干支线配置结构、提升港口服务能级。

建设方案：

码头岸线**6.1**km，防波堤**7.5**km，陆域总面积**6.6**km²，用海总面积**23.6**km²（其中新增围填海**5.68**km²），共建设**7**个7万吨级和**15**个2万吨级集装箱泊位、配套建设工作船码头、防波堤、航道、锚地等必要设施，设计年通过能力**1160**万TEU。



整体立项、连续建设、逐段运营

西段： 2025年投产，形成通过能力260万TEU。

西段-Ⅰ：2022年开工，2025年投产。建设4个2万吨级集装箱泊位、工作船泊位、防波堤2.9km、陆域1.1km²。

西段-Ⅱ：2026年投产。建设4个2万吨级集装箱泊位、陆域1.0km²。

东段： 2028年投产，形成通过能力550万TEU。建设6个7万吨级集装箱泊位、防波堤4.2km、陆域1.7km²、生态湿地1km²。

中段： 2030年投产，形成通过能力350万TEU。建设1个7万吨级和7个2万吨级集装箱泊位、防波堤0.4km、陆域1.8km²。

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