



Revision to WG184 – Design Principles for Dry Bulk Marine Terminals



**PIANC
APAC
2022**

2ND PIANC ASIA PACIFIC CONFERENCE
LEADERS AND PROFESSIONALS
COMING TOGETHER
4 - 7 SEPTEMBER 2022
MELBOURNE, AUSTRALIA
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Revision to WG184 - design principles for dry bulk marine terminals


PIANC WG184

In this photo (from left):

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PIANC
MarCom WG Report
n° 184 - 2019

**DESIGN PRINCIPLES FOR
DRY BULK MARINE TERMINALS**

The World Association for Waterborne Transport Infrastructure

1. Preface
2. Overview of Dry Bulk Marine Terminals
3. Bulk Shipping
4. Terminal Planning Considerations and Design Variables
5. Terminal Configuration
6. Materials Handling Systems and Equipment
7. Marine and Onshore Works
8. Berthing and Mooring of Bulk Vessels
9. Project Implementation Process
10. Operation and Maintenance of Dry Bulk Terminals
11. Dry Bulk Shipping Hazards
12. Environmental and Social Considerations
13. Case Studies


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energy exports

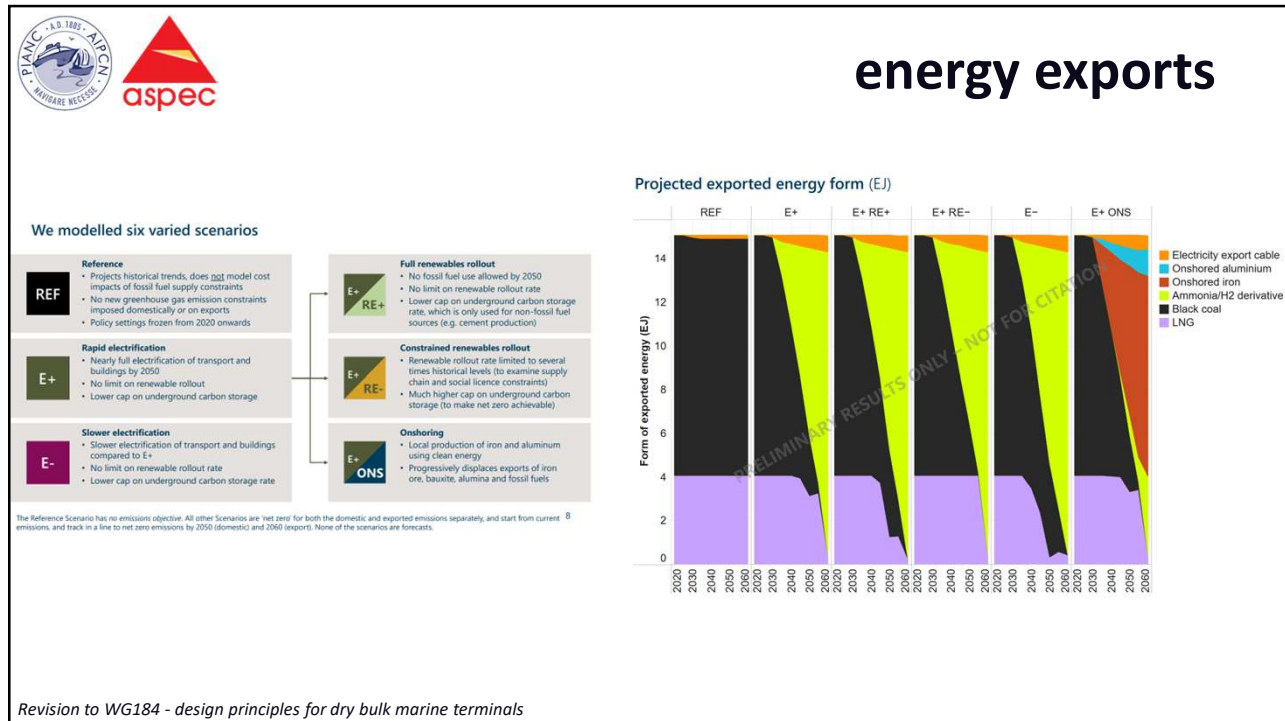
Projected exported energy form (EJ)

Scenario	2020	2030	2040	2050	2060
REF	~14	~14	~14	~14	~14
E+	~14	~14	~14	~14	~14
E+ RE+	~14	~14	~14	~14	~14
E+ RE-	~14	~14	~14	~14	~14
E-	~14	~14	~14	~14	~14
E+ ONS	~14	~14	~14	~14	~14

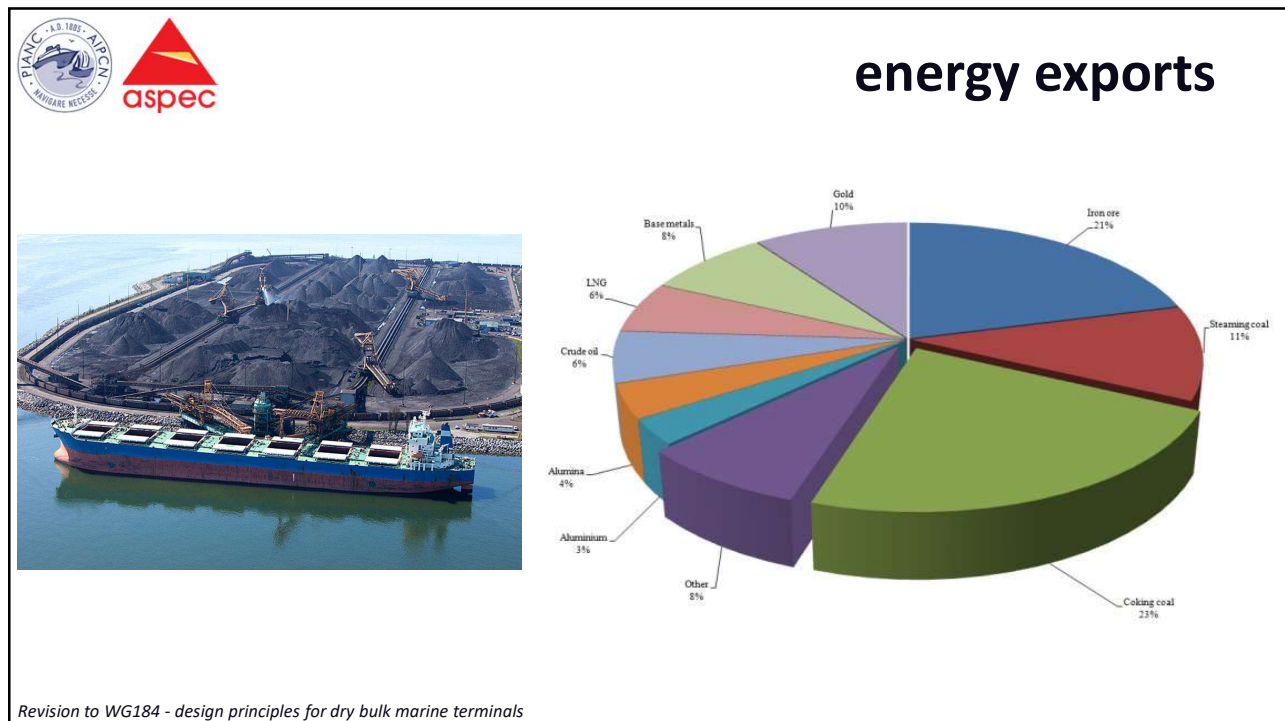


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update to WG 184

- Bulk shipping fleet characteristics
- Fenders and mooring equipment
- Bulk handling systems and equipment
- Automation
- Trans-shipment
- Project implementation
- Dry bulk shipping hazards
- Landside infrastructure
- Environmental and social concerns
- Case studies



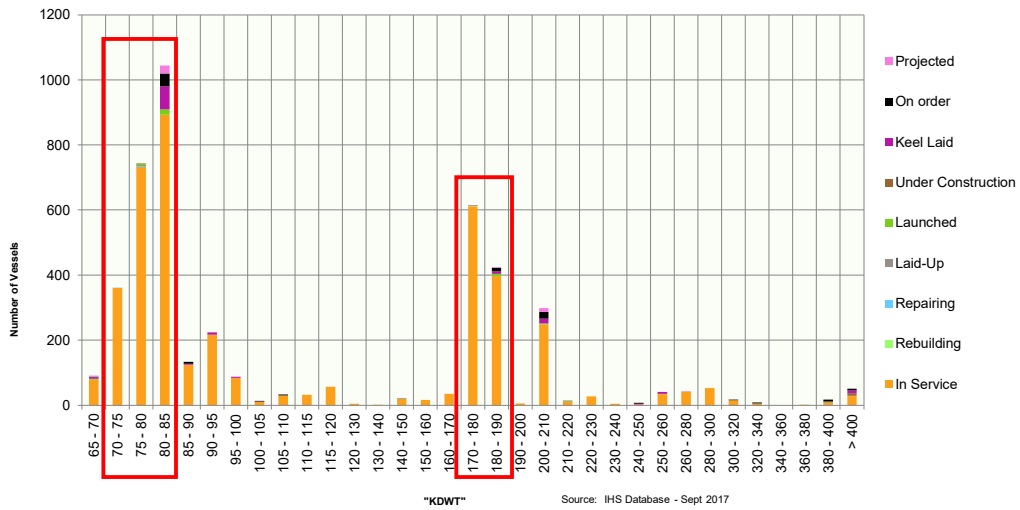
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Bulk shipping fleet characteristics

Distribution of World Bulk Carrier Fleet > 65,000 dwt





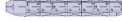





















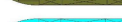
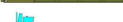
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Bulk shipping fleet characteristics

VESSELS DIMENSIONS ARE GIVEN BY LxBxD
L: LENGTH OVERALL / B: BEAM / D: DRAFT




15,000-25,000 DWT <small>(SMALL HANDY SIZES)</small>			160x24x9
25,000-50,000 DWT <small>(HANDY SIZES)</small>			186x28x11
35,000-50,000 DWT <small>(HANDY SIZES)</small>			194x29x11
50,000-60,000 DWT <small>(POST-PANAMA)</small>			214x32x12
70,000 DWT <small>(POST-PANAMA)</small>			224x32x12
98,000 DWT <small>(POST-PANAMA)</small>			236x38x15
80,000-125,000 DWT <small>(POST-PANAMA)</small>			258x39x15
100,000-180,000 DWT <small>(CAPX-SIZES)</small>			284x43x17
125,000-200,000 DWT <small>(SUEZMAX)</small>			295x45x18
180,000 DWT <small>(VERY LARGE BULK CARRIERS)</small>			305x47x18
186,000 DWT <small>(VERY-PANAMA)</small>			300x48x15
250,000 DWT <small>(POST-PANAMA)</small>			335x53x21
380,000-400,000 DWT <small>(CHINA MAX)</small>			372x62x24

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fender and mooring equipment

- WG 33 – Guidelines for the design of fender systems – referenced in WG 184
- WG 211 - Updating of WG 33 – Guidelines for the design of fender systems – to be referenced in WG 184
- WG 231 - Mooring Bollards & Hooks: Selection, maintenance & testing – to be referenced in WG 184

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Bulk handling systems and equipment



- Further coverage on processed mineral and powder products
- Processing and value-added services
- Dust and spillage control

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Bulk handling systems and equipment



- Further coverage on processed mineral and powder products
- Processing and value-added services
- Dust and spillage control

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automation

- Improve efficiency
- Improve operator safety

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automation

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transhipment





Self-discharging Vessel




Bulk Ship
Crane Barge
Barge

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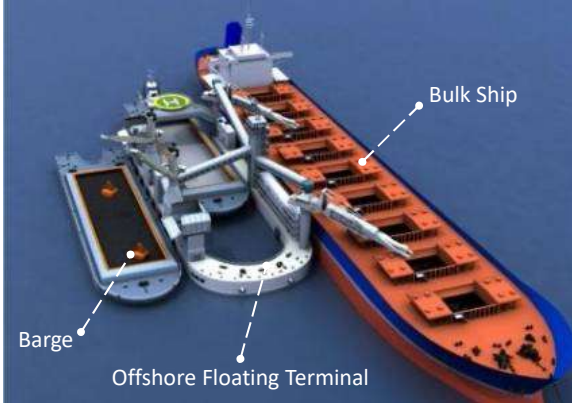
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transhipment





Offshore Floating Terminal




Bulk Ship
Barge
Offshore Floating Terminal


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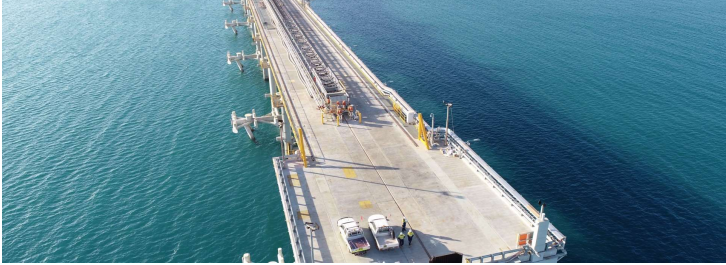
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Transport Infrastructure

**A FRAMEWORK FOR
EARLY CONTRACTOR INVOLVEMENT
IN INFRASTRUCTURE PROJECTS**





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project implementation

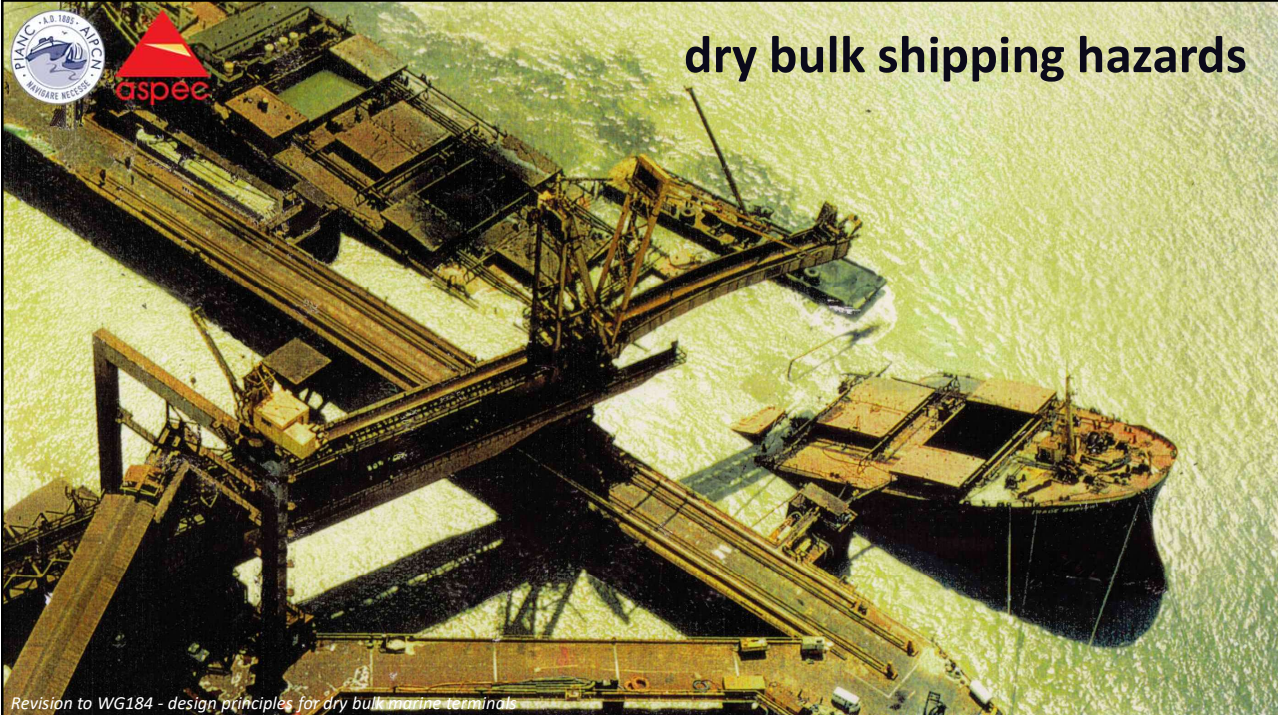


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dry bulk shipping hazards




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case studies




1. FMG Herbert Elliot Port, Port Hedland
2. Port Waratah Coal Services, Kooragang, Newcastle
3. EBHI, Gijon, Spain
4. EMO, Rotterdam, The Netherlands
5. EBS Europoort, Rotterdam, The Netherlands
6. EBS Laurens haven, Rotterdam, The Netherlands
7. MARA Offshore Floating Terminal, Indonesia
8. Gwangyang, South Jeolla Province

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Process mineral terminal
Agricultural terminal

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case studies


Smaller Commodities

- Copper concentrate
- Nickel ore
- Potash
- Alumina
- Lithium



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takeaways

- Keep document current – to be up to date with emerging PIANC guidelines
- Guidance for commodities required for carbon zero
- Update likely to be completed by 2025

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