



**A Sustainable & Multi fuel
Bunkering Hub – sharing
Singapore's Journey**

SINGAPORE'S JOURNEY

CONDUCTIVE AND SUSTAINABLE IMPLEMENTATION

Y2024 new record of 54 million ton inclusive 1.34 million ton of alternative fuels
 2024年，新加坡全年加注量達5,400萬噸，創歷史新高，
 其中替代燃料134萬噸。

Strong Governance 强而有力的管理

Building Transparency

建構透明度

Leveraging technological solutions 以科技為杠桿

Implementing Mass Flow Meters and eBDN

引入質量流量計和eBDN

Harmonised Standards 統一標準

Level the playing field

公平競爭

Incentivising Innovation 創新激勵

Catalyst to expedite advancement

加速催化進步

Strengthening Business Infrastructure 强化行業基礎設施

Sustaining business growth

保持行業增長



27 Jul 2023: First methanol delivery operation to a container vessel in Singapore:

The learning and experience gained from these operations, contributed to setting up TR 129 (methanol bunkering) and SS 709 (digitalisation)

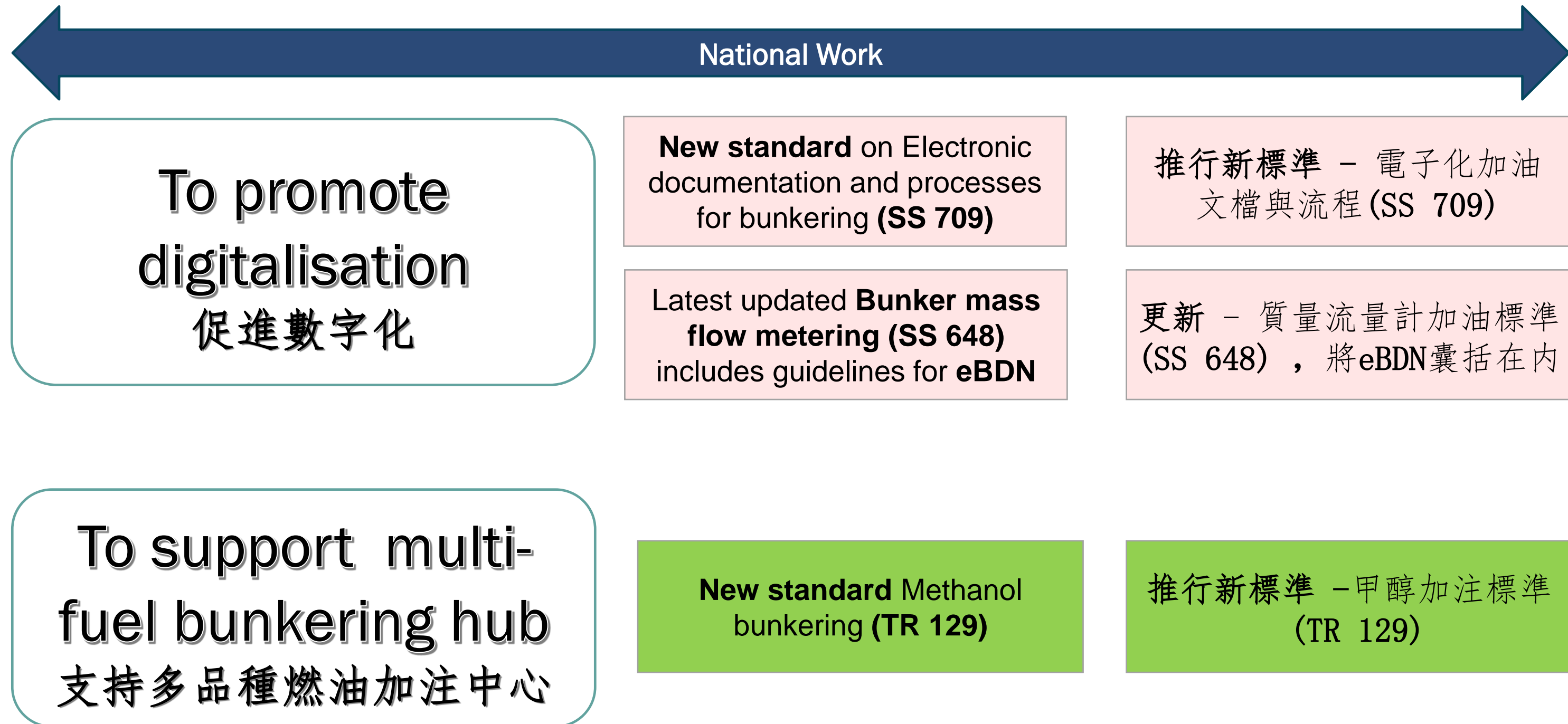


ONE e-BDN Adoption trial with Shell

9 Sep 2024: An e-BDN adoption trial with electronic transmission of bunkering documents

LATEST SUPPORTING STANDARDS

FOR A SUSTAINABLE, MULTI-FUEL BUNKERING HUB



METHANOL BUNKERING TR 129: 2024

CLEAR GUIDELINES FOR SMOOTH IMPLEMENTATION

Methanol bunkering operations
with receiving ship

Safety procedures and
bunker tanker
specification

Principles, requirements & procedures
for ship-to-ship

Competences & knowledge
required for personnel

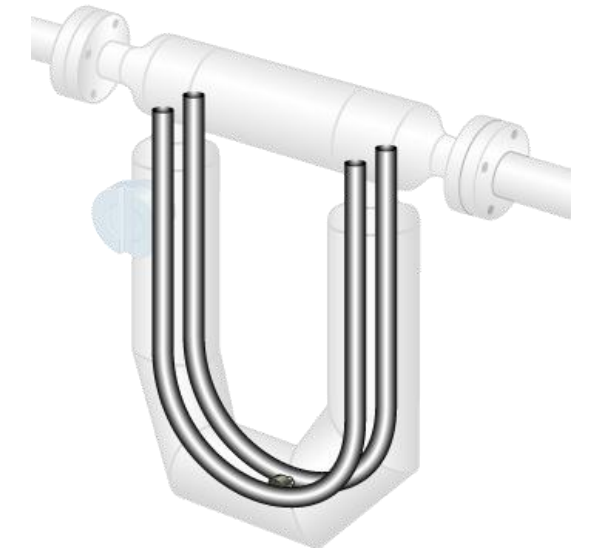
Competency
requirements for
personnel

Safely and efficiently delivering
methanol bunkers

Quantity & Quality measurements

Requirements for custody
transfer

Reference to SS648, custody
measurement with MFM system



**Direct mass
measurement**

受油船甲醇加注作業

安全程序與加油駁船規
範

原理，要求，以及船對船加油程序

人員能力與知識要求

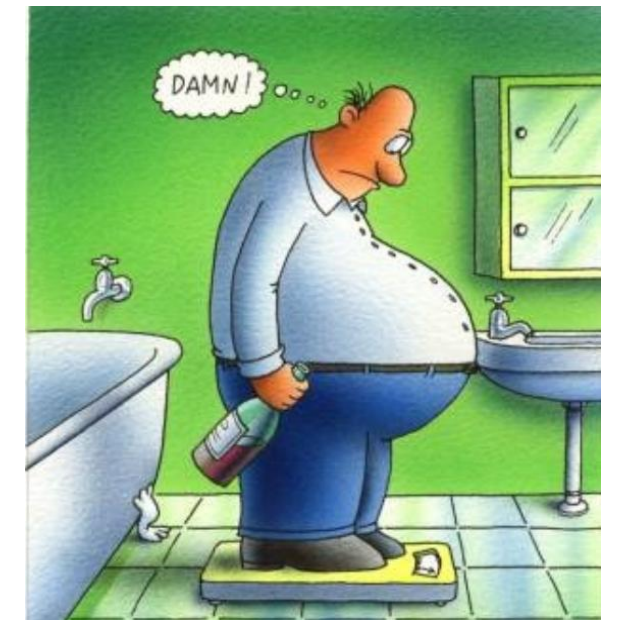
人員能力要求

安全高效地輸送甲醇燃料

計量數量與質量

貿易交割要求

參考SS 648，使用MFM系統進行
交割

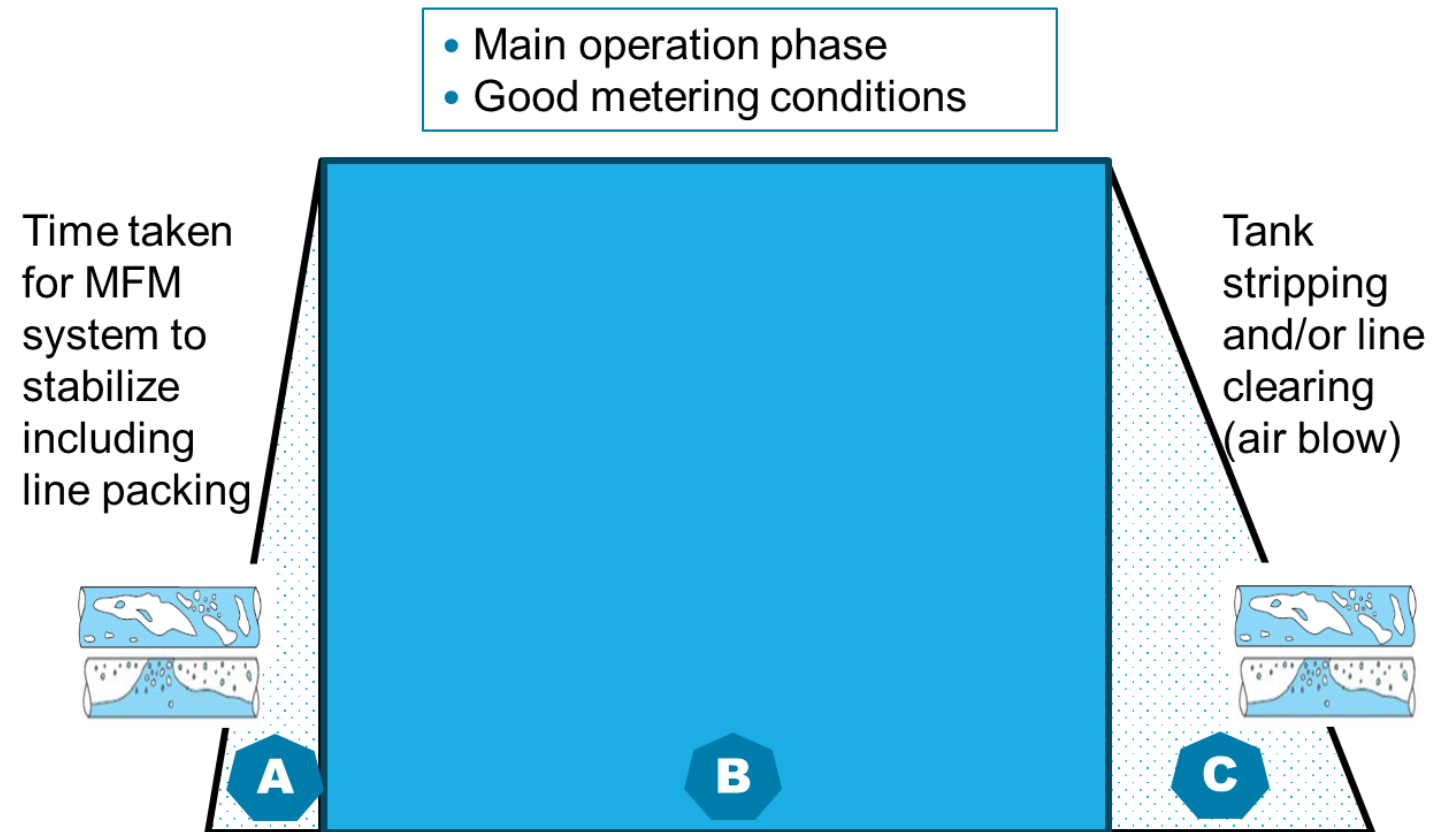


3 key parts of Singapore methanol bunkering standard

LEVERAGING TECHNOLOGY

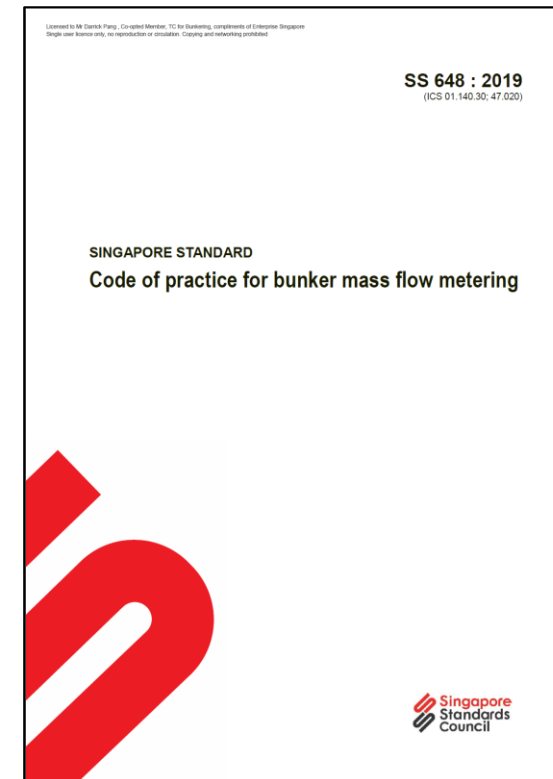
MASS FLOW METERS (MFM) WITH HARMONISED PRACTICES

Challenges during bunker operation

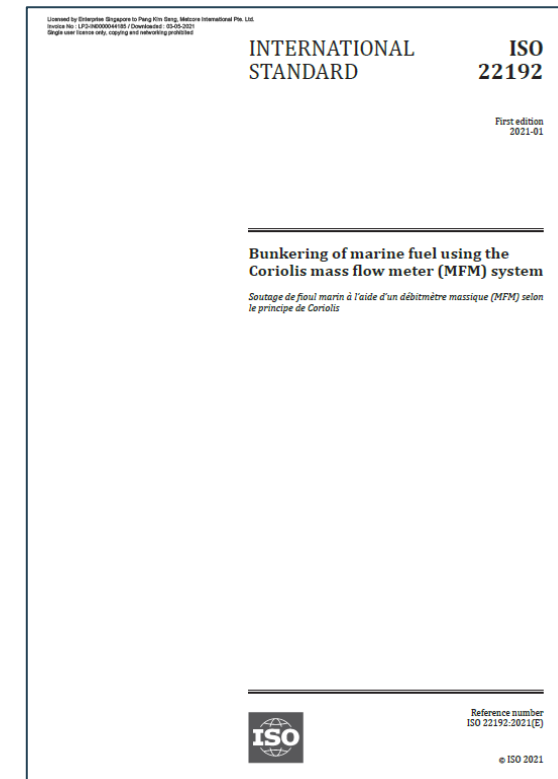


Aeration poses a challenge for flow meter principles and influences the accuracy

Meter system set up, testing and bunker operations



Metrological Requirements	計量學要求
System Integrity Requirements	系統完整性要求
Metering procedures	計量程序
Onsite testing requirements	現場測試要求
Post Operations Procedures	後期作業程序



Holistic approach with SS648 or ISO22192

THANK YOU!



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