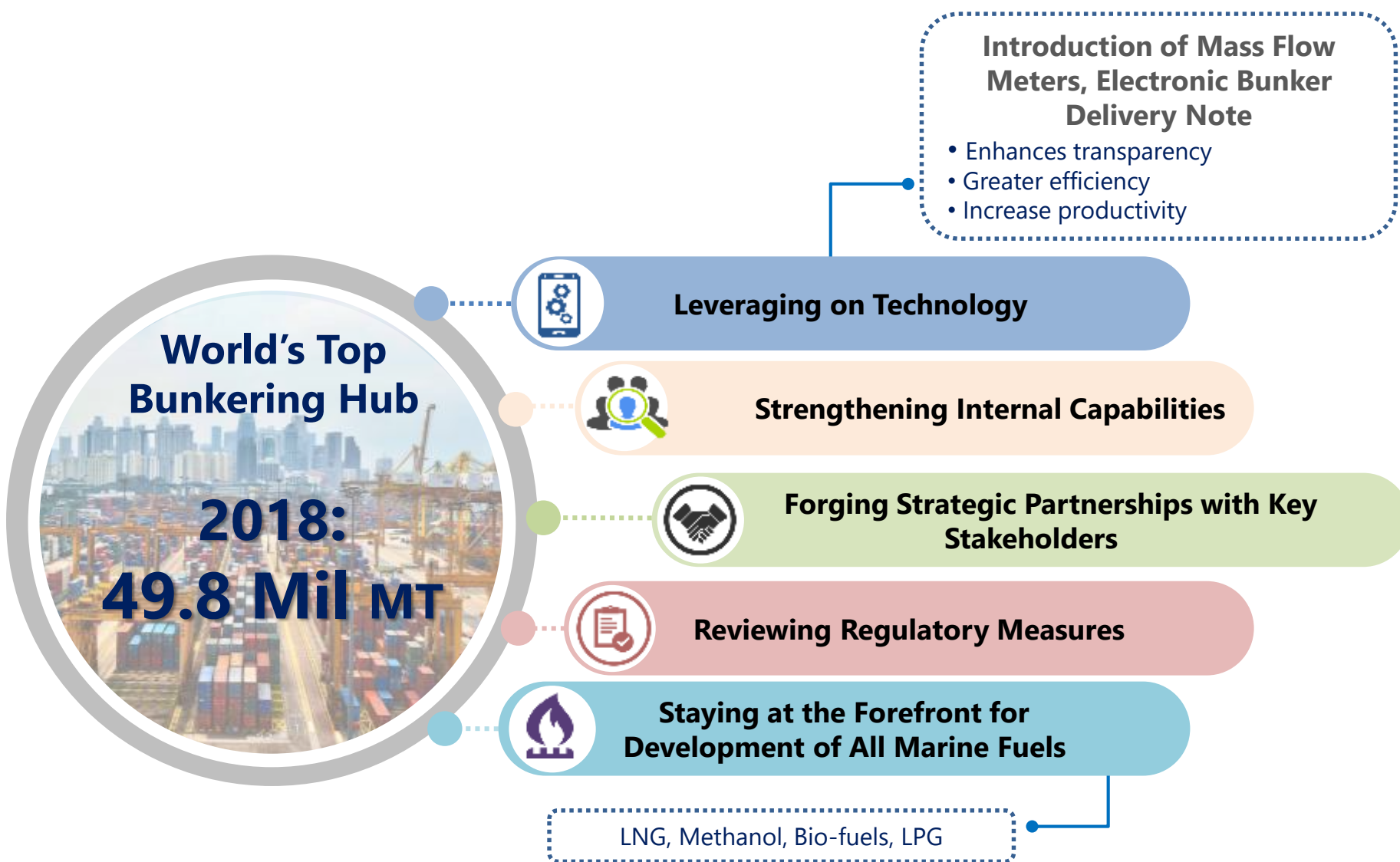


# Towards 2020 and Beyond – LNG as a Cleaner Marine Fuel

Maritime and Port Authority of Singapore  
7 Feb 2019



# Today, Singapore is the Leading Bunkering Hub in the World



# Key Focus Areas to Enhance Singapore's Readiness for LNG Bunkering



LNG Bunkering Training



Standards Bearer for LNG



International Co-operation



Framework for SIMOPS

Positioning the Port for **larger uptake** of LNG as a Marine Fuel



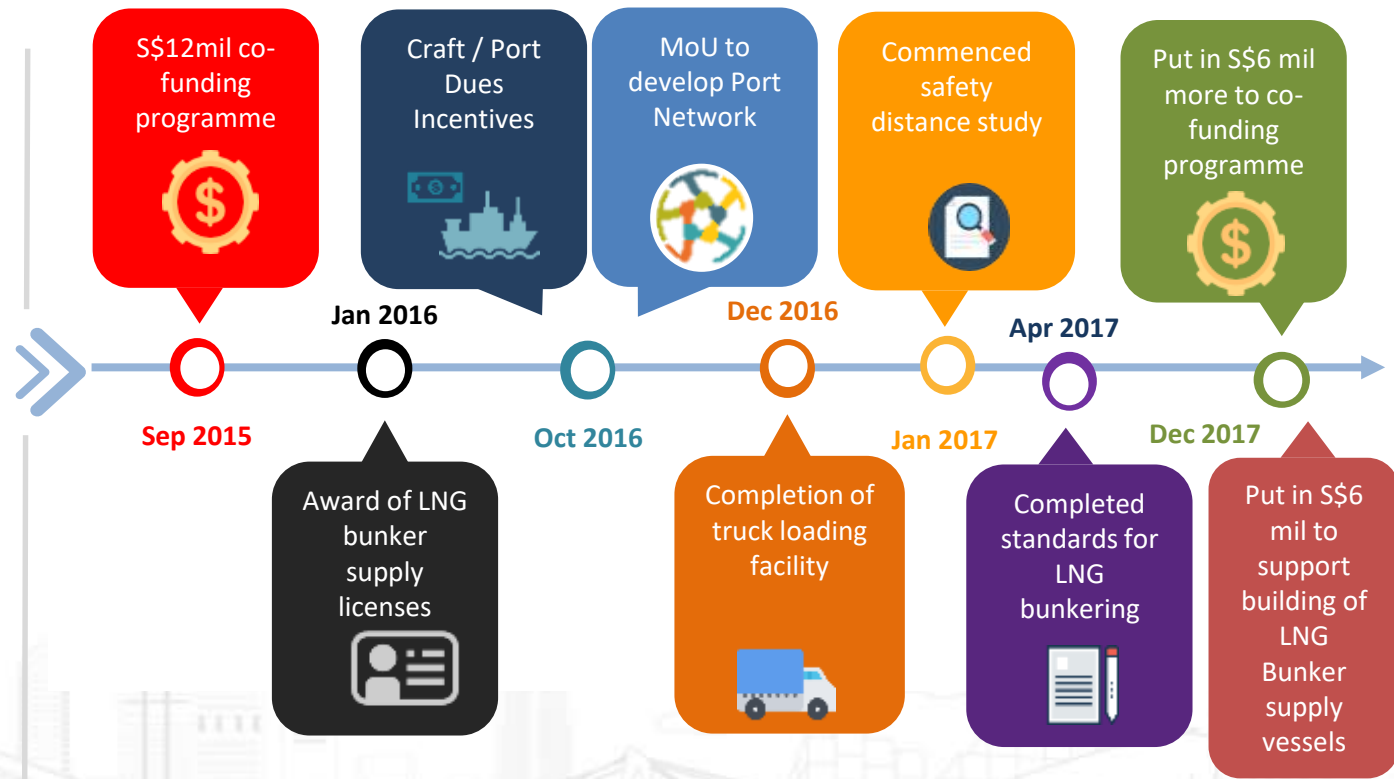
# Preparing Singapore to be an LNG Bunker Ready Port In Line with IMO's 2020 global sulphur limit of 0.5% for marine fuels



**3-Year LNG Bunkering Pilot Programme**

**2017-2020**

1. To test bunkering procedures
2. Gain operational experiences
3. Beef up Singapore's capabilities in the areas of LNG bunkering



First LNG Bunker Vessel target to come into operation from 3Q2020

# LNG Bunkering Operations in Singapore

May  
2017

## LNG BUNKERING DEMONSTRATION

Conducted by Pavilion Gas - First Demo in South East Asia, Truck to Ship supply model



June  
2017

## BUNKERING OPERATIONS

Conducted by FuelNG - Bunkering of Cardissa, an LNG bunker vessel



Sep  
2017

## BUNKERING OPERATIONS

Conducted by FuelNG – Bunkering of Golar’s Hilli Episeyo FLNG



Mid-  
2018

## REGULAR BUNKERING OPERATIONS

Regular bunkering of LNG-fuelled harbour craft from mid-2018 onwards



# Working with Local and International Partners to Enable Uptake of LNG as Bunkers



# Readiness of the LNG Port Focus Group to Supply LNG as Bunkers

## Port of Singapore

- Embarked on a three-year LNG bunkering pilot programme from 1 January 2017
- Working on being an LNG bunker-ready port as early as 2020
- S\$26 million set aside to enable infrastructural development



## Port of Rotterdam

- Aims to have ten LNG bunker supply vessels by 2020
- LNG bunker volumes (in metric tonnes): 100 (2016), 1,500(2017), 10,000(2018 - est)



## Port of Norway

- Home to Viking Grace, world's first LNG powered passenger vessel
- More than 80,000 LNG bunkering operations conducted to-date



## Port of Zeebrugge

- 38 operations to-date
- 48 operations to-date



## Port of Antwerp

- Permanent bunkering facility to be ready by end 2018



## Port of Vancouver

- To be the world's most sustainable port
- LNG bunkering study done in 2016
- Assessing key LNG bunkering sites to launch LNG bunkering services from now till 2030

## Port of Yokohama

- Working with Singapore on feasibility study for LNG-fuelled Car Carriers with NYK, K Line and MOL



## Ulsan Port

- Conducted study for LNG bunkering infrastructure in Korean ports



## Port of Jacksonville

- Premier US LNG bunkering Port



## Port of Ningbo-Zhoushan

- First Chinese Port to join the LNG Port Focus Group in 2017
- Plans to develop an LNG bunkering infrastructure system by 2025
- Target to have LNG fuelled engines on 10% of the river-going merchant vessels sailing on the main domestic trade lanes and on 15% of new government-owned vessels.

## Marseille-Fos Port

- LNG bunkering services and a loading station for LNG trucks to be ready in 2019
- Next generation LNG cruise ships to make Marseille a port of call





THANK YOU