

# GREEN PORT POLICY

KUANTAN PORT

---

2021-2030

ver. 3.0

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# *MANDATE BY GENERAL MANAGER Of Kuantan Port Authority*

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*"Success in achieving the goals of Green Port Policy of Kuantan Port towards a smart, safe and sustainable port can be achieved with the integrated cooperation between all stakeholders in port"*

The **Green Port Policy of Kuantan Port** is a guide in providing strategic direction in planning the development and operation of a safe, sustainable and smart port. This policy is an effort by Kuantan Port Authority in ensuring the development of Kuantan Port in line with the principles and commitments recommended by the Government in the context of Energy Efficiency (EE), decarbonization of the port ecosystem, and intensifying digitalization in the port in line with The Fourth Industrial Revolution (4IR).

This policy outlines five general objectives to be achieved by Kuantan Port by 2030. These objectives are encompassing the element of environment, social and governance (ESG) as well centered on five strategic pillars which contain several initiatives as a guide in the development of a sustainable and smart port ecosystem that shows characteristics such as efficient and sustainable operation, safe and eco-friendly. In addition to environmental mitigation, this policy also aims to support economic growth towards a developed port in line with the Sustainable Development Goals (SDGs).

In overall, the priorities in achieving the objective of this policy are the efficiency and sustainability of the use of resources such as electricity and water usage. The prudent and efficient use of these resources can benefit the port as well as support the Government's goal of reducing the carbon footprint and mitigating global climate change other than helping port users in the context of Embodied Carbon. Air and sea quality control as well as orderly and effective waste management are also very important in ensuring that the goals of this policy can be achieved.

The successful implementation of the Green Port Policy of Kuantan Port 2021-2030 requires the cooperation of all stakeholders in Kuantan Port. I take this opportunity to call out all port users in Kuantan Port to work together in an effort to ensure that all activities carried out at Kuantan Port always meet the aspect of safety, sustainability and eco-friendly.

Thank you.

**DATO' KHAIRUL ANUAR BIN ABDUL RAHMAN**

May 2021

# INTRODUCTION

Port is an important element in supporting trade activities and economic growth of the country. Located at the strategic position in east coast region of Peninsular Malaysia, Kuantan Port as a commercial port has ample opportunities to attract foreign investors and be a catalyst in the country's economic development.

In line with the rapid pace of economic development, other elements that need to move in parallel are health, safety and environment. It is estimated that 7.9 tonnes per capita total carbon emissions in 2011 in Malaysia compared to high middle-income countries which emit 5.4 tonnes per capita. The highest carbon emissions generated in the transport sector is land transport which is about 90% (48.2M tons).<sup>[1]</sup>

The acceleration in the port sector is also contributing to air emissions which can contribute to global warming and climate change. According to a study from the Mauna Loa Observatory, Hawaii, to reduce the 2°C increase in global warming it is necessary to reduce the carbon footprint by 2 tons per year until 2050. In the early 1700s, the GHG content was only 180-280 ppm as well as about 80% heat can be sent back out of the atmosphere. In June 2021, the GHG content in the atmosphere increased by 415.20 ppm. The GHG rate continued to increase in June 2022 by 2.20 ppm making the global GHG content recorded at 417.42 ppm.<sup>[2]</sup>

The Government estimates that 22% of recyclable waste can be achieved by 2020. However, in reality only 2% of recyclable waste has been recorded by 2017. Awareness of recycling needs to be conveyed to all sectors including the port sector. Ports, which are also recipients of waste from ships, need to manage them carefully and in an orderly manner in order to help reduce the impact of pollution on the environment.<sup>[3]</sup>

The **Green Port Policy of Kuantan Port** is a guide in formulating the development and operation plan of Kuantan Port in accordance with the principles of conservation and environmental friendliness. The cooperation of all stakeholders in the port, especially port operators, is needed in driving the development of Kuantan Port towards a safe, viable and sustainable port.

[1] National Transport Policy 2019-2030

[2] Global Monitoring Laboratory - Carbon Cycle Greenhouse Gases (noaa.gov)

[3] Policies, Challenges and Strategies For Municipal Waste Management In Malaysia 2017

# ABBREVIATION

- KPA = Kuantan Port Authority
- MARDEP = Marine Department of Malaysia
- DOE = Department of Environment
- IMO = International Maritime Organization
- MARPOL = International Convention for the Prevention of Pollution from Ships
- ISGOTT = International Safety Guide for Oil Tankers and Terminals
- IMDG Code = International Maritime Dangerous Goods Code
- PRF = Port Reception Facility
- Air emission = Refer to of all air emissions such as PM<sub>10</sub>, CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub> and others
- GHG = Greenhouse Gas
- CO<sub>2</sub> = Carbon dioxide
- 4IR = The Fourth Industrial Revolution
- PM<sub>10</sub> = Fine particles 10 micrometers and below
- ppm = Parts per million (units for measuring air pollutants)
- EE = Energy efficiency
- RE = Renewable energy
- ESG = Environment, Social, Governance
- SDG = Sustainable Development Goals
- Net zero carbon = The content of carbon emission is equivalent to the carbon used

# OBJECTIVES

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## Objective 1

Maneuver towards a smart port operating ecosystem and stable biosphere through effective engagement with stakeholders



## Objective 2

To explore the aspect of efficiency in energy and water consumption as well as sustainable practices in every activities in Kuantan Port



## Objective 3

To comply with national policies and standards regarding the implementation of green initiatives as well as mitigation on climate change



## Objective 4

Crafting effective green strategies towards Net Zero Emission port in 2030



## Objective 5

To ensure the quality of air, land and water quality as well as waste management at Kuantan Port is always at the satisfactory level

2022

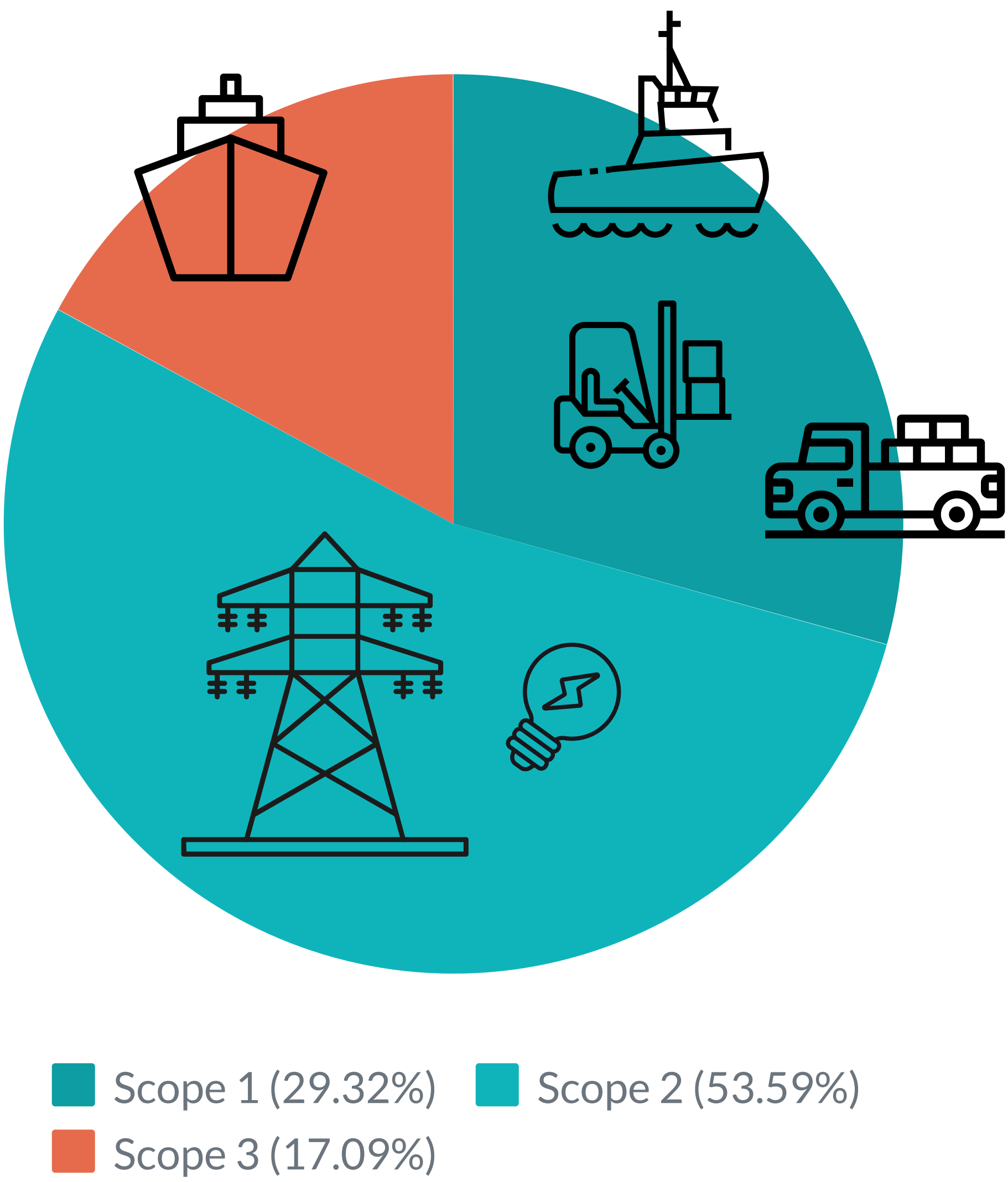
Baseline of Carbon Inventory Data

| Scope | Category                       | Sources Type                                     |
|-------|--------------------------------|--------------------------------------------------|
| 1     | Port Direct Source             | 1. Mobile Combustion<br>2. Stationary Combustion |
| 2     | Port Indirect Sources          | Electricity                                      |
| 3     | Port Tenants And Other Sources | 1. Sea-going Vessels<br>2. Medium & Heavy Trucks |

First and foremost it is important to identify GHG emission sources in Kuantan Port before proceed to comprehensive calculation. Stated above are port’s emission sources that has been identify and are tabulated according to respective scope.

After completing the emissions inventory calculations, evaluation of the results is the next step in understanding operational and emission patterns of port related emission sources, identifying opportunities to reduce emission and quantifying the expected benefits from emission reduction strategies.

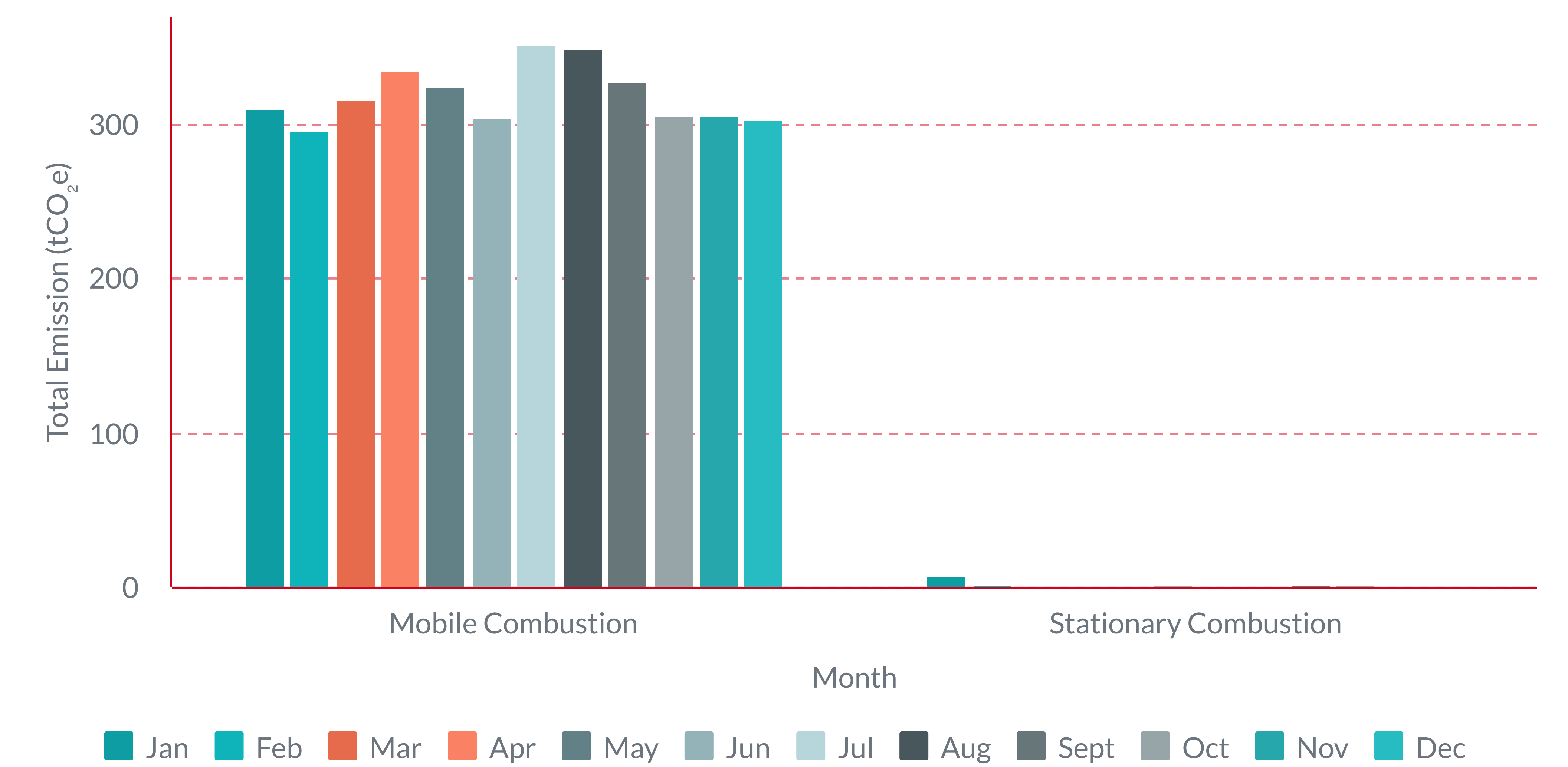
Note that, all Global Warming Potential (GWP) and emission factor are referring to UK Defra, Fuels, GHG Conversion Factors for Company Reporting ver. 2.0 as well IPCC Fifth Assessment Report, 2014 (AR5).



From the baseline data, it is found that most of the emission come from Scope 2 : Electricity. This is due to most of the services and equipments has been electrified

SCOPE 1

Mobile Combustion



|            | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec   | Total (tCO <sub>2</sub> e) |
|------------|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-------|----------------------------|
| Mobile     | 310 | 295 | 315 | 334 | 324 | 304  | 351  | 349 | 327  | 305 | 305 | 303   | 3822                       |
| Stationary | 7   | 1   | 0   | 0   | 0   | 1    | 0    | 0   | 2    | 2   | 0   | 0     | 13                         |
|            |     |     |     |     |     |      |      |     |      |     |     | Total | 3,835                      |

- Mobile combustion :
1.

Cargo handling equipment (eg: RTG, forklift, reach stacker, prime mover)
2.

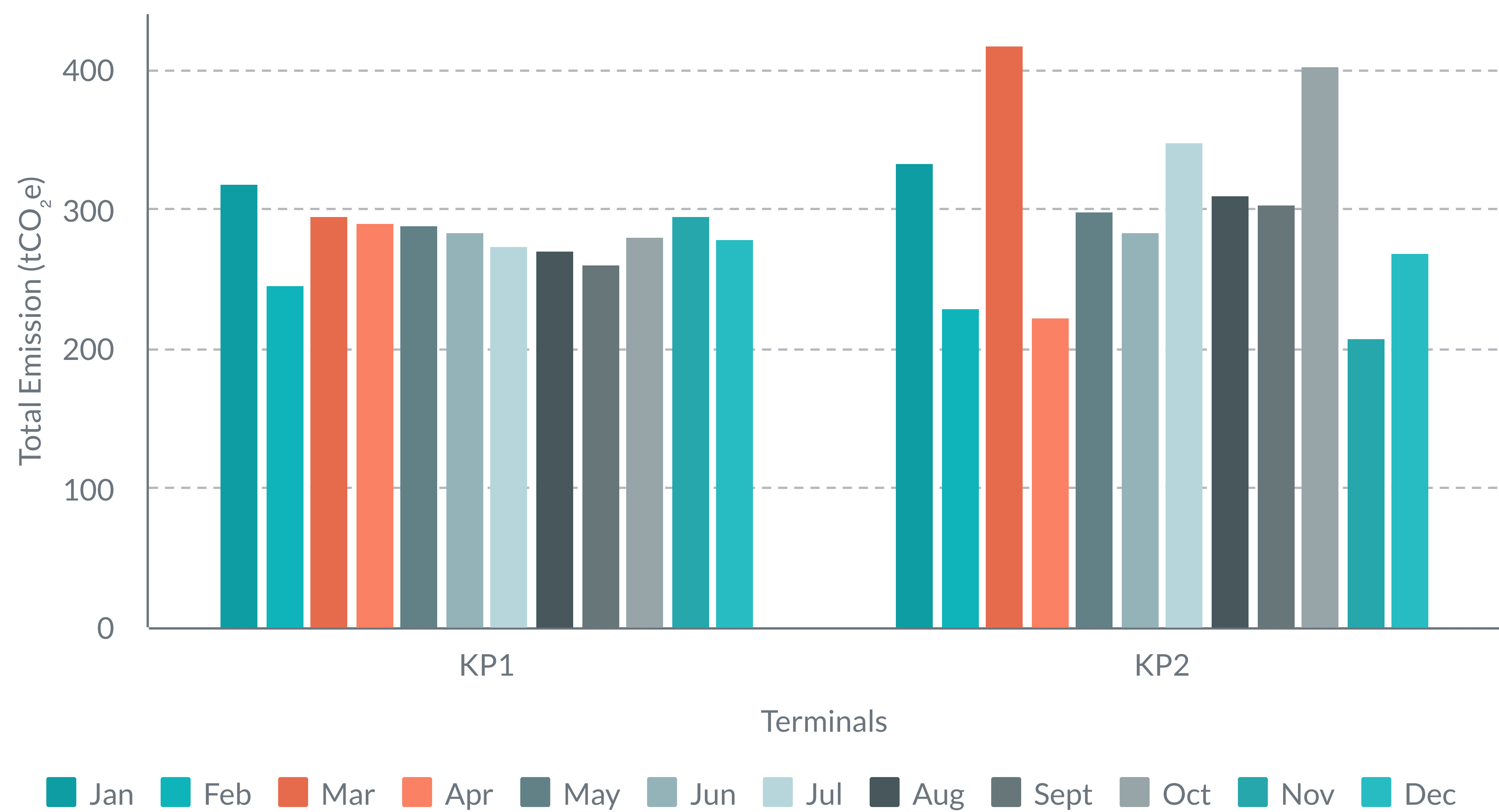
On road vehicle (eg: pickup truck)
3.

Harbour vessels (eg: tugboats & pilot boat)
- Stationary combustion :
1.

Diesel genset

SCOPE 2  
Electricity





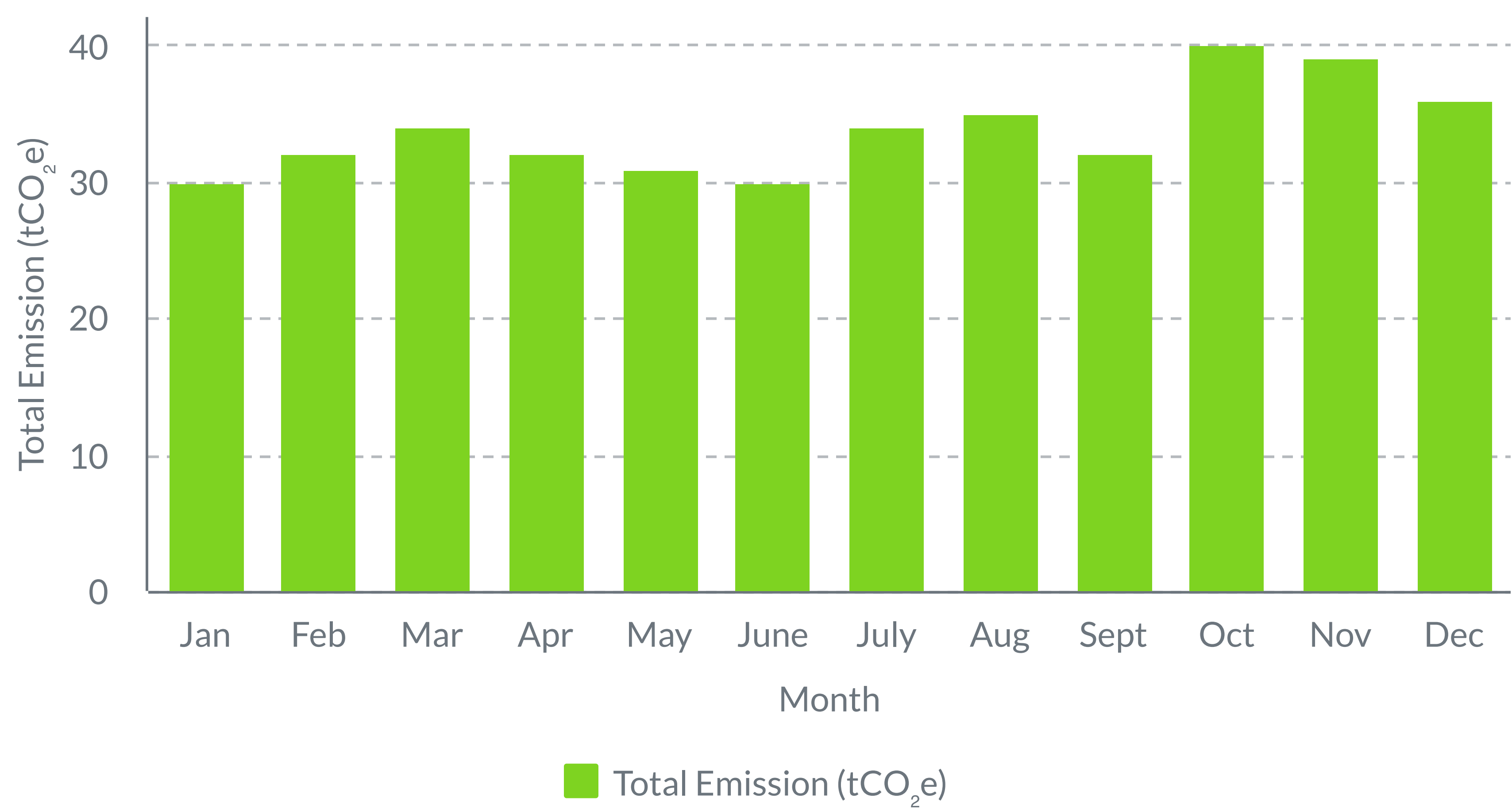
|     | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec   | Total (tCO <sub>2</sub> e) |
|-----|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-------|----------------------------|
| KP1 | 318 | 246 | 295 | 290 | 289 | 284  | 274  | 271 | 260  | 281 | 296 | 279   | 3383                       |
| KP2 | 333 | 229 | 418 | 222 | 298 | 284  | 348  | 310 | 304  | 403 | 208 | 269   | 3626                       |
|     |     |     |     |     |     |      |      |     |      |     |     | Total | 7,009                      |

# SCOPE 3



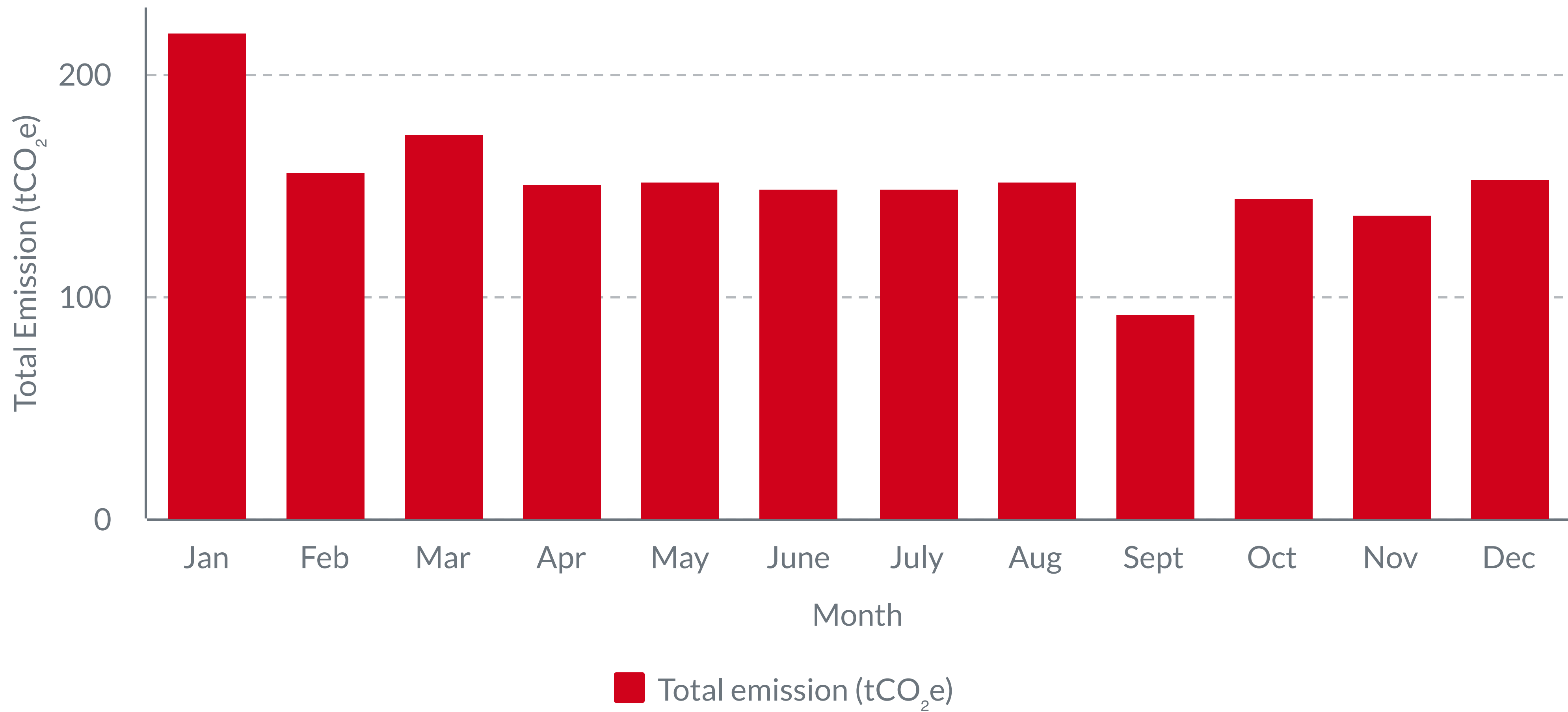
## Sea-going Vessels & 3rd Party Heavy Trucks

Sea-going Vessels



|                                     | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Total |
|-------------------------------------|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|-------|
| Total Emission (tCO <sub>2</sub> e) | 30  | 32  | 34  | 32  | 31  | 30   | 34   | 35  | 32   | 40  | 39  | 36  | 405   |

Medium and Heavy 3rd Party Trucks



|                                     | Jan    | Feb    | Mar    | Apr    | May    | June   | July   | Aug    | Sept   | Oct    | Nov    | Dec    | Total     |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|
| Total trip (km)                     | 151136 | 151353 | 149092 | 149065 | 152119 | 159731 | 144897 | 137377 | 153071 | 161323 | 179112 | 152612 | 1,849,887 |
| Total Emission (tCO <sub>2</sub> e) | 218.7  | 156.3  | 172.9  | 151.3  | 151.5  | 149.3  | 149.3  | 152.3  | 92.2   | 145.1  | 137.6  | 153.3  | 1830      |

# 5 Strategic Thrust for Achieving Green Port Policy Objectives

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- ✓ **1st Pillar**  
Reduce Dust Pollution Level At Port
- ✓ **3rd Pillar**  
Control Sea Pollution At Port Area
- ✓ **5th Pillar**  
Adapting Digitalization To Decarbonized Port Operation

- ✓ **2nd Pillar**  
Implement Initiatives To Reduce Carbon Footprint At Port
- ✓ **4th Pillar**  
Implement Initiatives Of Energy And Water Efficiency At Port



# 1ST PILLAR

## REDUCE DUST POLLUTION LEVEL AT PORT

### Objective:

1. Implement initiatives in reducing the level of air pollution at port.
2. Comply with the requirements of other agencies in terms of air quality in the port.
3. Practice eco-friendly cargo handling system.

### Initiative:

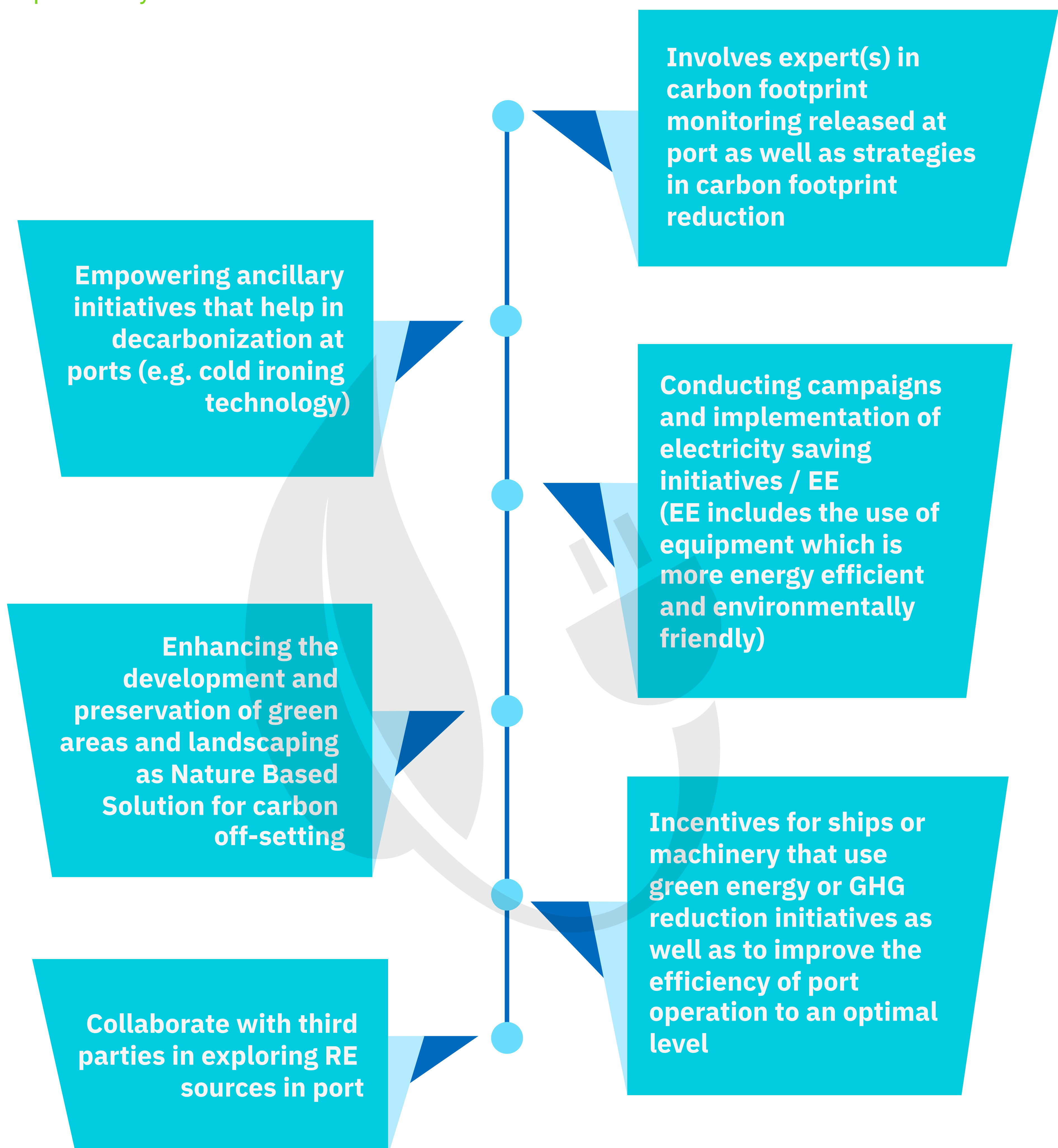
1. Collaborate with the DOE on environmental quality compliance in port and awareness regarding air pollution.
2. Install and use water sprinkler system for dry bulk cargo storage to reduce dust sedimentary.
3. Designate separate zones for dry bulk cargo for air pollution control purposes.
4. Establish adequate wind barrier around the dry bulk cargo storage site zone.
5. Ensure that the washing bay is created in a suitable place and is always maintained in good condition.
6. Develop air monitoring stations to monitor the level of pollution and air quality in the port. (examples of pollutant:  $PM^{2.5}$  and  $PM^{10}$ )
7. Establish a long-term plan for the use of eco-friendly cargo handling systems and operations in port (examples: eco-hopper and grab, eco-friendly loading chute, suction unloader)
8. Collaborate with the MARDEP on the requirement of a sulfur content limit of 0.5% m/m under the requirements of Regulation 14.1, Appendix VI, MARPOL 73/78. (MSN 06/2019)

## 2ND PILLAR

### IMPLEMENT INITIATIVES TO REDUCE CARBON FOOTPRINT AT PORT

#### Objective:

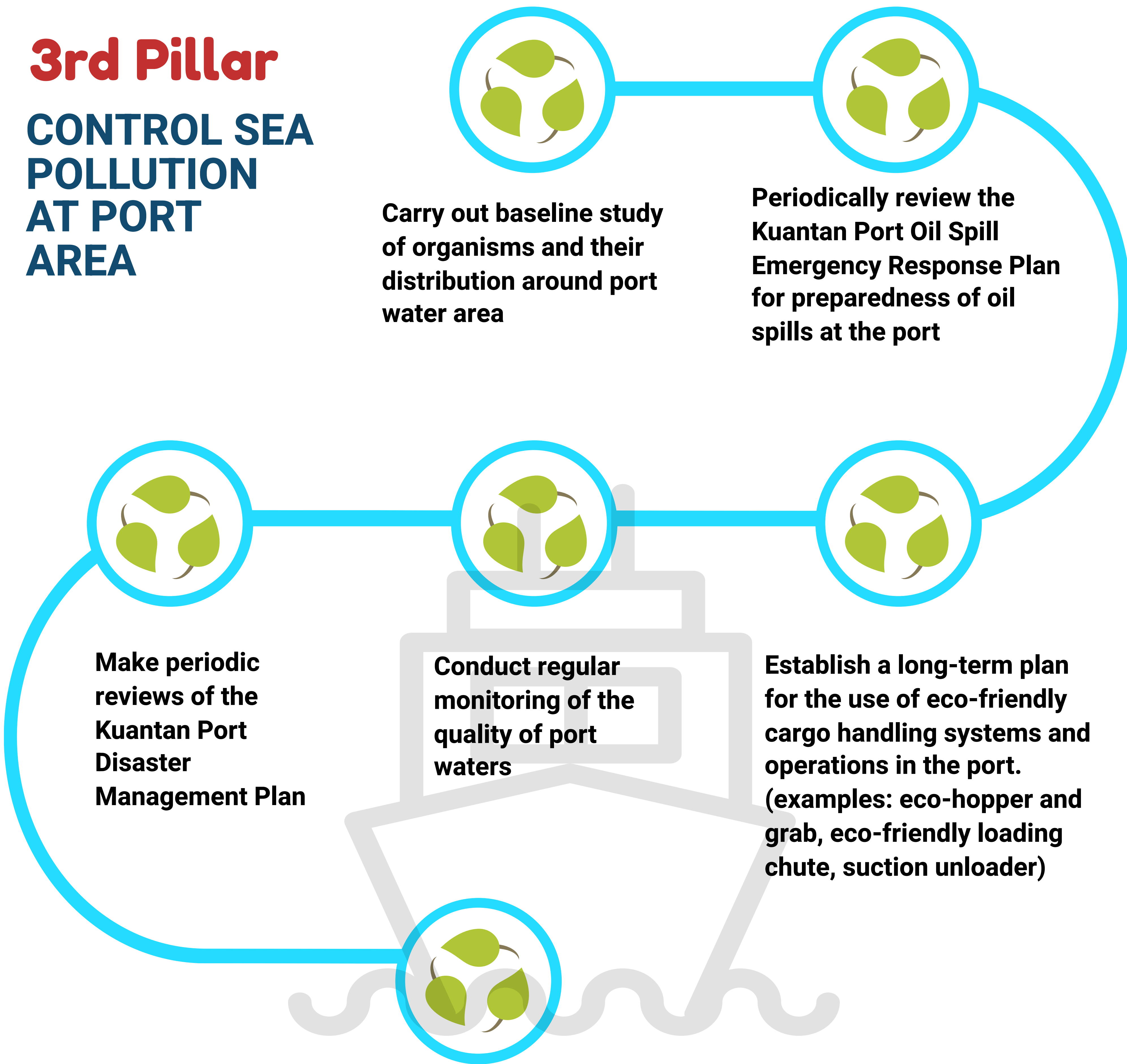
1. Achieve 20% carbon footprint reduction in ports by 2030.
2. Empowering strategies to reduce the carbon footprint or net zero emission in port.
3. Reduce the impact on the environment and global climate change that are affected by the port ecosystem.



Objective:

- 1. Ensure port water are always free from any form of pollution.
- 2. Ensure the use of environmental friendly operating systems in port.

**3rd Pillar**  
**CONTROL SEA POLLUTION AT PORT AREA**



Collaborate with relevant agencies such as the MARDEP, DOE and others in compliance with the provisions of water quality control in the port. [example: International Convention for the Control and Management of Ballast Water and Ship Sediment. (MSN 8/2017 and MSN 14/2020)]

# 4th Pillar

## IMPLEMENT INTIATIVES OF ENERGY AND WATER EFFICIENCY AT PORT

Objective:

- 1. Improve the implementation of electricity and water efficiency in decarbonizing port operation.
- 2. Practice energy and water savings to the optimum level.



01

Implement efficient rainwater collection techniques for daily operational usage such as:

- watering on dry bulk cargo to prevent dust sedimentary
- washing bay
- wharf cleaning after the cargo operation is completed



02

Intensify the implementation of water re-treatment systems throughout the port area to be reused for post-operational purposes (example: wharf washing or washing bay)



03

Expand the usage of LED lighting throughout the port area by stages as well as exploring and implementing other appropriate EE initiatives (e.g. alternative energy such as solar energy)



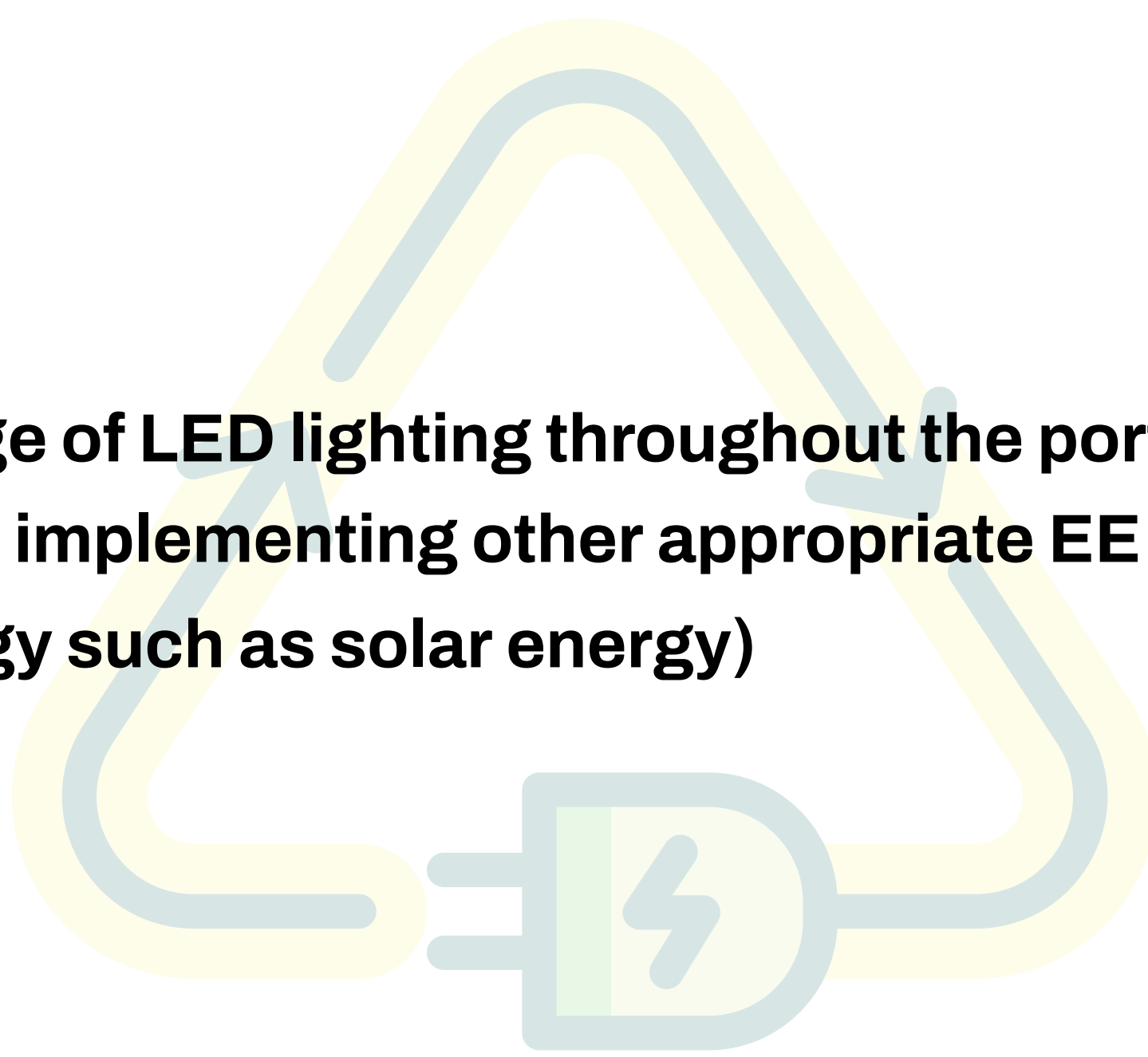
04

Broaden environmental and energy management systems in ports according to standards (e.g. ISO 14001, ISO 50001, PERS- Port Environmental Review System)



05

Empower the utilization of on-shore power supply for harbor craft and sea-going vessels during berthing

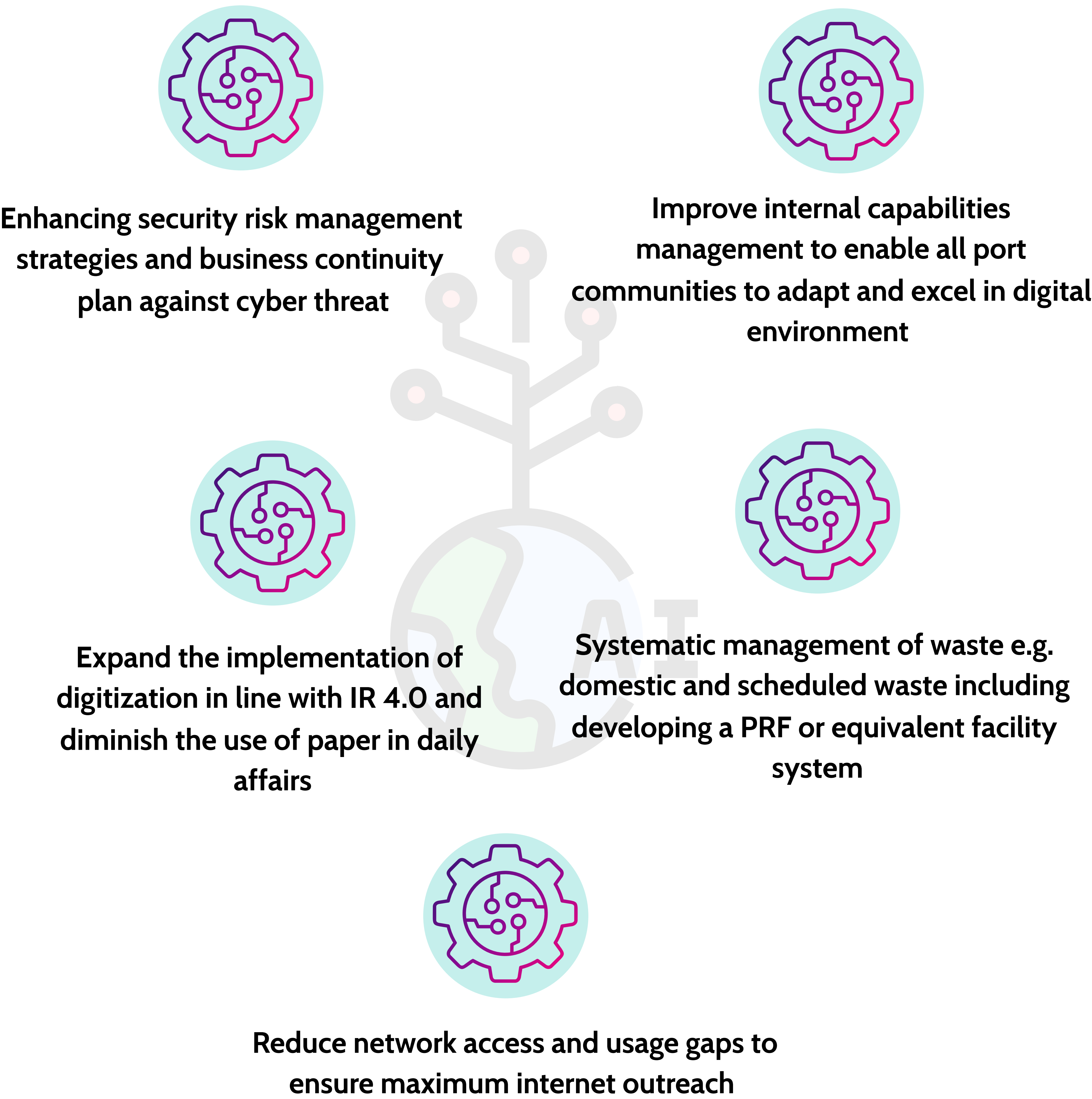


# 5TH PILLAR

## ADAPTING DIGITALIZATION TO DECARBONIZED PORT OPERATION

Objective:

- 1. Empower the digitalization initiatives to enhance the efficiency of the port.
- 2. Encourage sustainable initiatives in port businesses including systematic management of waste.



A photograph of a sunset over a body of water. The sun is low on the horizon, casting a warm orange glow across the sky and water. A small boat is in the foreground, moving towards the left, leaving a white wake. A large ship is visible in the background on the right. The sky is filled with scattered clouds, some of which are illuminated by the setting sun. The overall mood is serene and peaceful.

*"Towards Net Zero Emission Port in 2030"*