

GOALS AND MOTIVATIONS

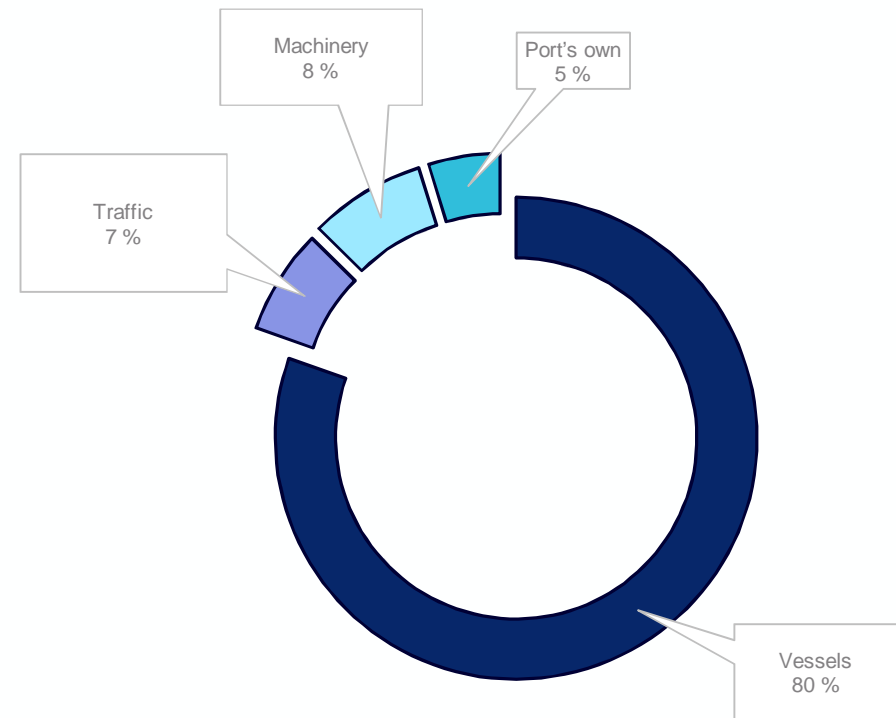
- Port of Helsinki 100% **carbon neutral** by 2035
- Affect CO2 emissions in **whole harbor area**
- Minimum **30% reduction of total CO2** emitted in harbor by 2035
- Program leaves room for **future advancements of technology** to be implemented along the way



HARBOR AREA CO2 EMISSION SOURCES

1. Vessels
2. Heavy Machinery
3. Traffic
4. Port's own (electricity, heating, cooling and electricity for vessels)

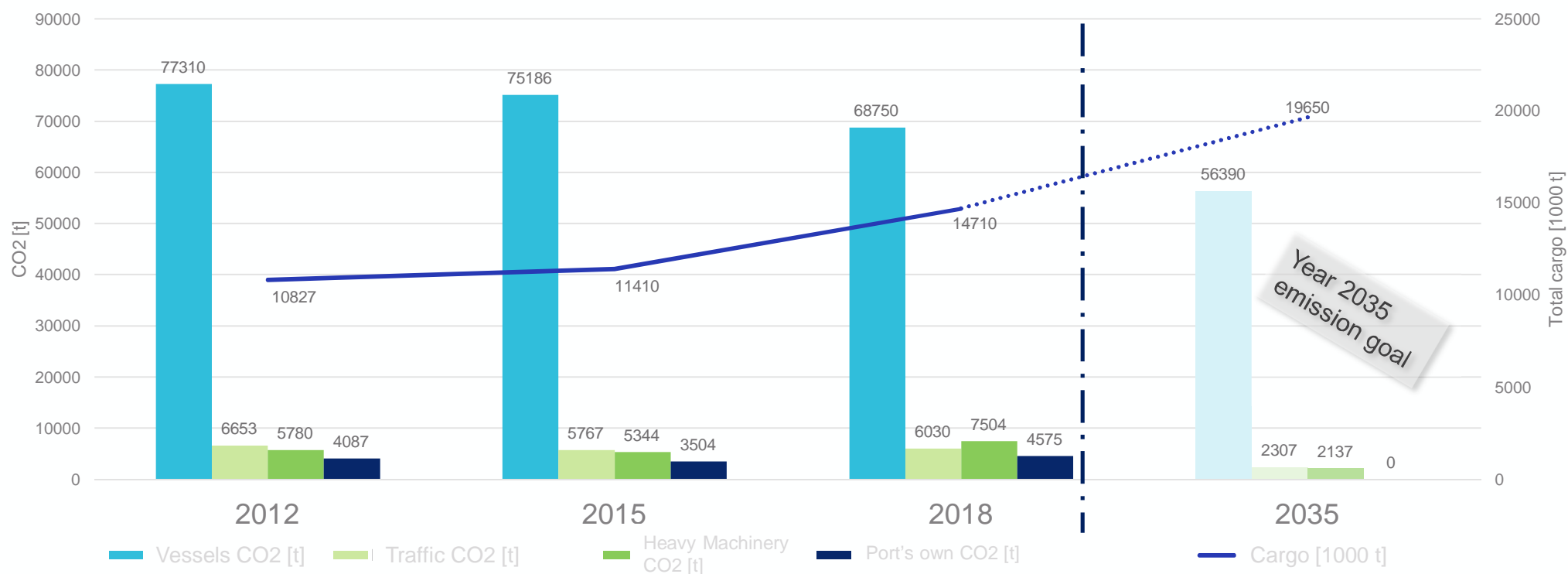
Harbor area CO2 emission distribution 2018



EMISSION GOALS APPROVED BY BOARD OF DIRECTORS

EMISSION SOURCE	REDUCTION %	CO2 REDUCTION SINCE 2015
Vessels	- 25 %	- 18797 t
Heavy Machinery	- 60 %	- 3206 t
Traffic	- 60 %	- 3460 t
Port's own	- 100 %	- 3022 t

CO2-EMISSION DISTRIBUTION 2012, 2015, 2018 AND TARGET YEAR 2035



ACTION PLAN

VESSEL CO₂ EMISSION

- OPS solutions to be installed where appropriate → ~50% reduction of CO₂ emissions at berth
- Additional automooring investments
- Enable bunkering of alternative fuels in Helsinki → New vessels ordered -> smaller emissions
- Further refine and adapt Environmental Discount Program



HEAVY MACHINERY CO₂ EMISSIONS

- Future proof harbors for electrification of machine fleet
- Biofuels
- Carbon neutral and resource wise business parks – EU project
 - Operator interviews fall 2019
 - More detailed map of Vuosaari emissions, spring 2020
 - Low carbon procurements pilot, spring 2020
 - New technology pilot, 2020
- Harbor icebreaking. Switch to biofuels possible?



TRAFFIC CO₂ EMISSIONS

- Minimization of time spent in harbor
 - "One gate"-project
 - "Slot time"-project
 - In-harbor route optimization
 - Safe and fast routes to and from the harbors
 - Expedite vessel unloading and loading with improvements to infrastructure. Example: double ramps
- Incentives to environmentally friendly trucks



PORT'S OWN CO₂ EMISSIONS

- Self-optimizing LED lights (both inside and out)
- Heat recycling and reclaiming
- Building resource efficiency. Solar panels
- Use of heat pumps in building cooling and heating (sea water?)
- Use of 100% carbon free energy
 - Emission compensation the last line of defence
- Work related travelling, low- or no-emission commuting
- Sub-contractor carbon footprint reduction (separate project)

