BPTT's – Steering towards reducing Marine GHG

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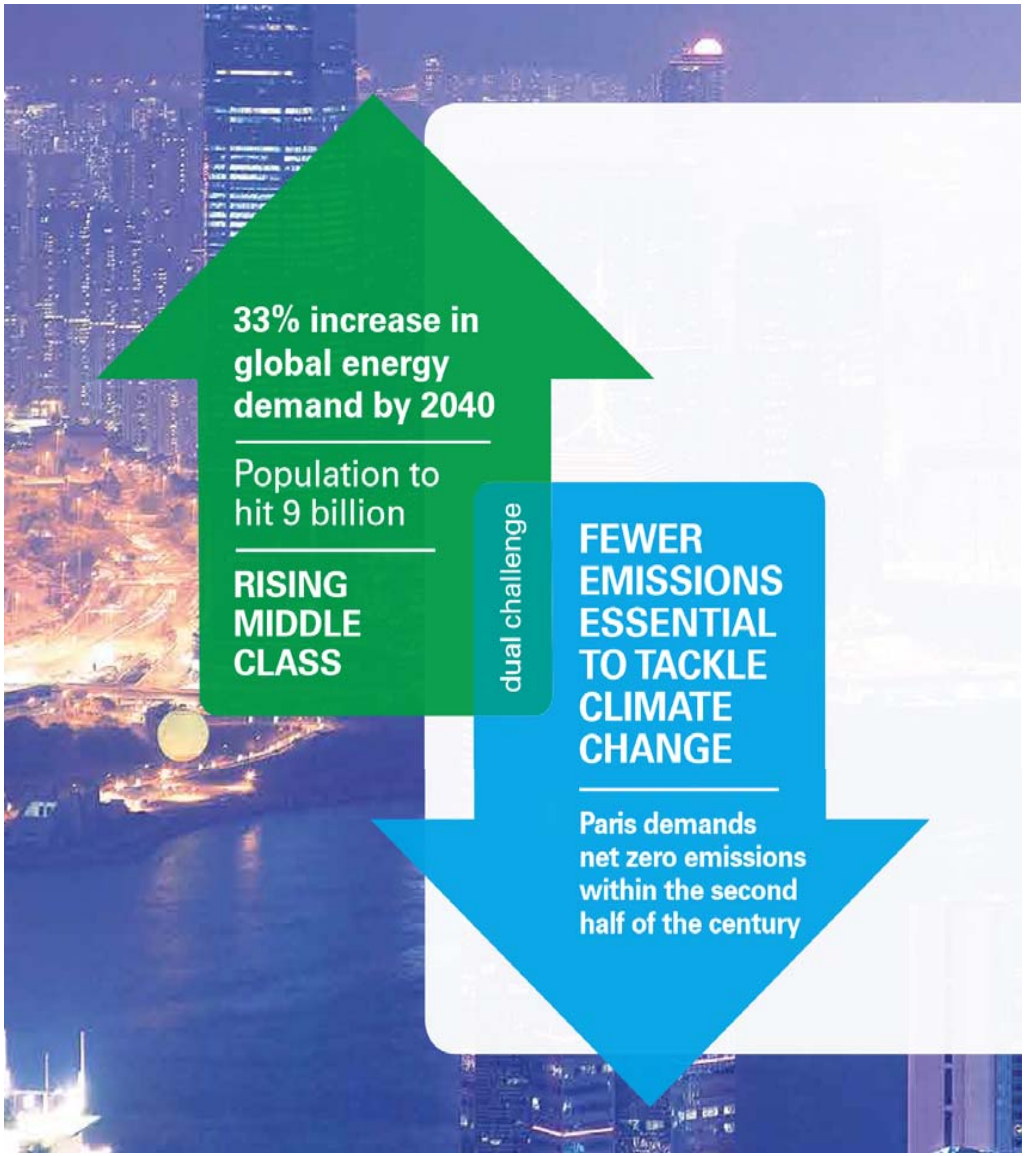
1 July, 2019

BP's Commitment to a low carbon future

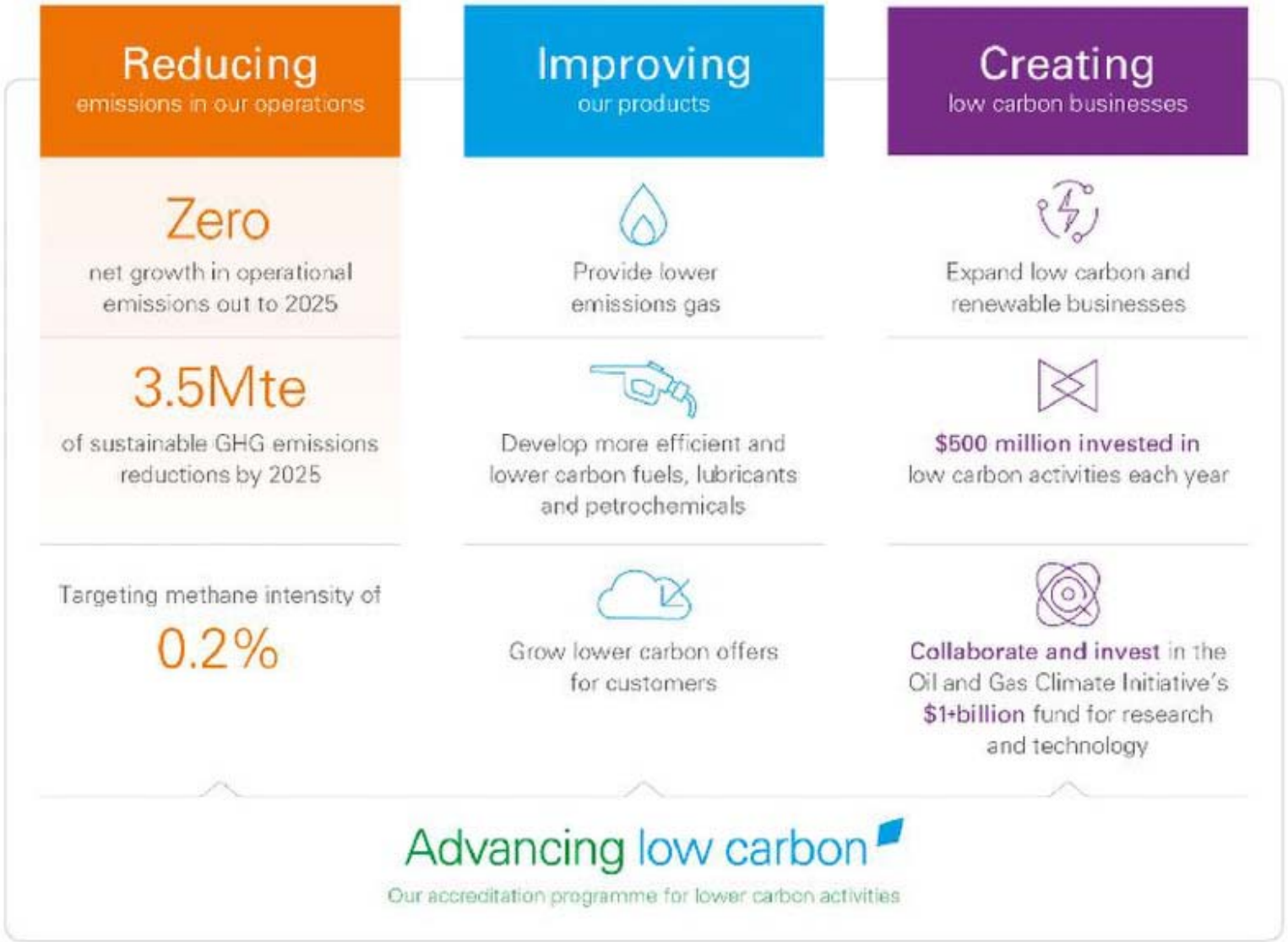


Advancing low carbon

Our targets include:

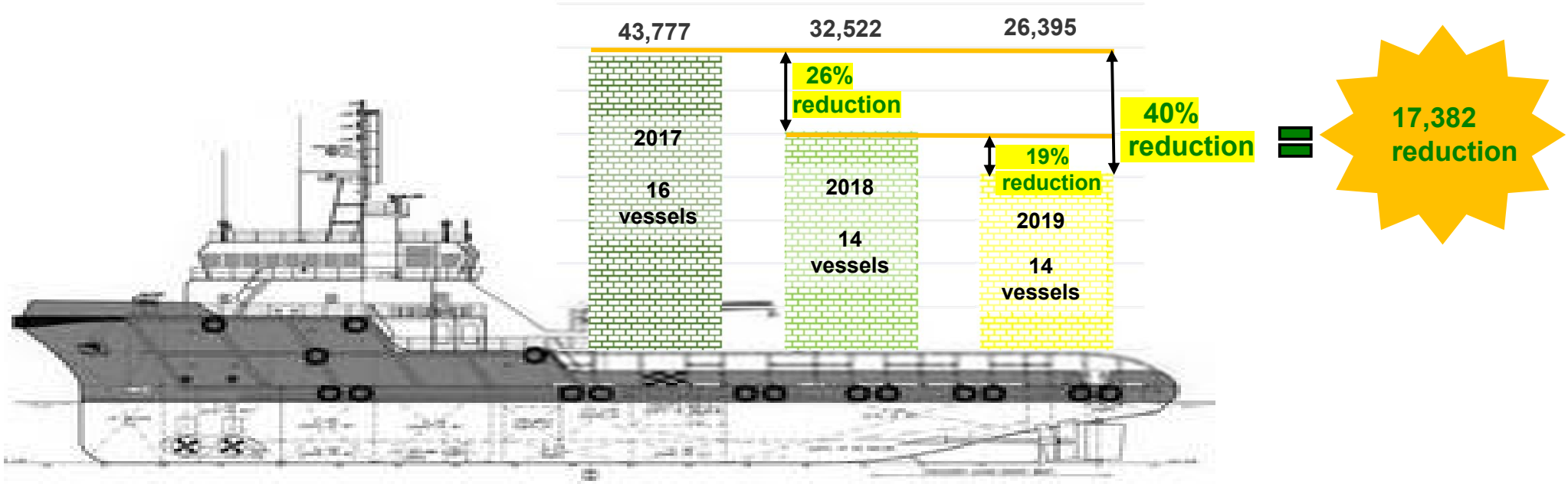
- Zero net growth in operational emissions from 2015 to 2025
- A goal of 3.5 million tonnes of sustainable greenhouse gas (GHG) emissions reduction in the same timeframe
- The aim of limiting methane intensity to 0.2%

BP Group – Carbon Ambitions



BPTT - Reducing our marine carbon footprint

CO_2 Emissions 2017 – 2019
Term vessel fleet
Tonnes



Our Journey

2017

Problems

1. Lack of efficient logistics planning
2. Poor deck utilization
3. High standby time offshore
4. Vessels with inefficient propulsion technology i.e. CPP, diesel propulsion
5. High inter-field transfers
6. Sailing above economical speed.

2018

What was done differently:

1. Changed strategy to having fit for purpose vessels, e.g. from term AHTS to spot hire, as required
2. Operating vessels at economical speeds - no 'hot shot' sailings
3. Fixed sailing schedule
4. Vessels assigned to support functions rather assets
5. Clear guidelines in Marine Operations Manual - regulating standby time in 500m Safety Zone
6. Change of diesel propulsion to mainly diesel electric. Increased Azimuth drive in fleet.

Our Journey – 2017 to present

- *Reduction of transit time/distance offshore*
- Reduce vessel standby time when in 500M zone of facility – *Less fuel burn on DP and emissions*
- Current fleet under 8 years and have met the energy efficiency mandate.
- All vessels in fleet are Diesel electric. – due to varing demand on engine power this configuration is more efficient than traditional methods.
- Economic speed sailing – using the minimal diesel generators to sail to and from offshore installation.
- Regular time for maintenance to clean hulls for marine growth – Trinidad waters present good condition for the flourishing of marine flora and fauna on the vessel' hull. This includes propeller cleaning.
- Proper planned cargo delivery routing – reduction the need to stay in 500MZ unnecessarily as well as prevent repeat entry to delivery cargo to the facilities during one sailing.

Our Contractors Initiatives

Policies

Environmental Protection Plan/Policy

This is aimed at reducing GHG emissions established with firm commitment of senior executives. Establish annual Environmental Protection KPIs i.e. fuel consumption and CO2 reduction targets.

14001 Certification

Pursuit/achieved ISO 14001 Environmental Management System (EMS) certification

Compliance with SEEMP & EEDI

July 2011 - Vessels outfitted with Ship Energy Efficiency Management Plan (SEEMP) which is audited by Class utilizing the Energy Efficiency Operational Indicator (EEOI).

January 2013 - Energy Efficient Design Index (EEDI), new ship design are required to meet the reference level for their ship type (grams of CO_2/ship capacity mile)

Cold Ironing

"Cold ironing" - vessels plugged into electrical shore power during port calls.

Remote Monitoring Center

For oversight of vessels operations.

Power Management System (PMS

Vessels fitted with Power Management System (PMS) which automatically removes non-essential generators from the switchboard based on operational requirements (i.e. standby mode)

Energy Storage System and/or Hybrid Technology

Pursuit of Energy Storage System and/or Hybrid Technology – battery technology and/or alternative power supply to support main electrical consumers such as DP system; thus, reducing diesel generators usage.

Hybrid battery system cuts offshore construction vessel fuel consumption

Wärtsilä has installed three energy storage systems onboard an offshore construction vessel to provide energy and load sharing capability.

Mar 15th, 2019

Closing

- BP will continue to seek new technologies/process that will enable to achieve BP global GHG objective.
- Our culture will continue to evolve and adapting to efficient ways of working.
- Promote the use of innovative technology in maritime operations.