



## Cleaner Air for Southampton

Improving air quality in our city



# Welcome

The Port of Southampton is committed to taking a lead in improving air quality in the city.

While the quality of the air we breathe has improved significantly in the last 10 years, and continues to do so, we believe we can make further improvements.

We have a responsibility as a neighbour and a major employer to be at the forefront of these improvements. Whether we live or work in Southampton, we all want clean air to breathe.

That's why we've published our Port Air Quality Strategy – more than a year ahead of the Government's schedule – so we can share initiatives we have already introduced together with our future plans.

We've made significant investments to enhance air quality in and around the port – introducing electric vehicles, free to use charging points and cycle lanes together with improvements to the rail and road networks. We've also reduced our energy consumption by 25% over the past 10 years, against a significant increase in port activity, and we generate about 20% of our energy through solar power.

But we're not stopping there. Our commitment now is to better understand the sources of emissions generated by port activities, assist in research and help develop innovations to support cleaner air, which will set the benchmark for the rest of the UK ports sector. We will also introduce a green tariff for cleaner ships, trial hybrid patrol vessels and seek to be the first UK port to have shoreside power for cruise ships.

Southampton grew up around the port and we are an integral part of city life. We are committed to playing our part to ensure it continues to be a healthy, thriving and prosperous place to live, work and visit.

**Alastair Welch**

Director of ABP Southampton



# Introduction

The air we breathe each day affects our health and our wellbeing. We all want our air to be as clean as possible. Air quality across the UK has improved steadily since the 1970s and monitoring in Southampton since 2007 shows the city is continuing this trend.

We are keen to play our part to continue this improvement and help the city meet European objectives. This document explains what we are already doing, and our plans for the next five years.

Southampton City Council is responsible for monitoring air quality in the city. It has found levels of nitrogen dioxide are above objectives set by the European Union Air Quality Directives (2008) in some areas of the city.

Based on these monitoring results, the city council has developed a Clean Air Strategy for 2016-2025 to monitor air quality and work with residents and businesses to clean up the city's air.

In addition, the Government has asked all ports to produce air quality plans by spring 2019.

As a major employer and a responsible neighbour, we wanted to present our plans early as we seek to play a leading role in improving emissions in the city.

This document highlights the work we are already doing as well as our plans for the future.

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# About the Port of Southampton

## THE UK'S LEADING EXPORT PORT

As an island nation, we are dependent on seaborne activity – 95% of our trade arrives or departs by sea. Here in Southampton, we handle £71 billion of goods every year – 14% of UK throughput by value. £40 billion of this figure is for exports (18% of total UK value) of which 90% is destined for markets outside the European Union.

We are unique within the UK port sector in the range of sectors that we serve.

We are the number one cruise port in Northern Europe welcoming two million passengers every year on 500 vessel calls. 85% of the UK cruise market is based in Southampton and we are the only port capable of receiving such large vessels.

We are also home to the UK's second largest and most productive container terminal. This trade is dominated by the largest container vessels in the world which can carry more than 20,000, 20-foot containers per journey. Around 80% of the vessels arriving in Southampton travel on the Far East to Europe route.

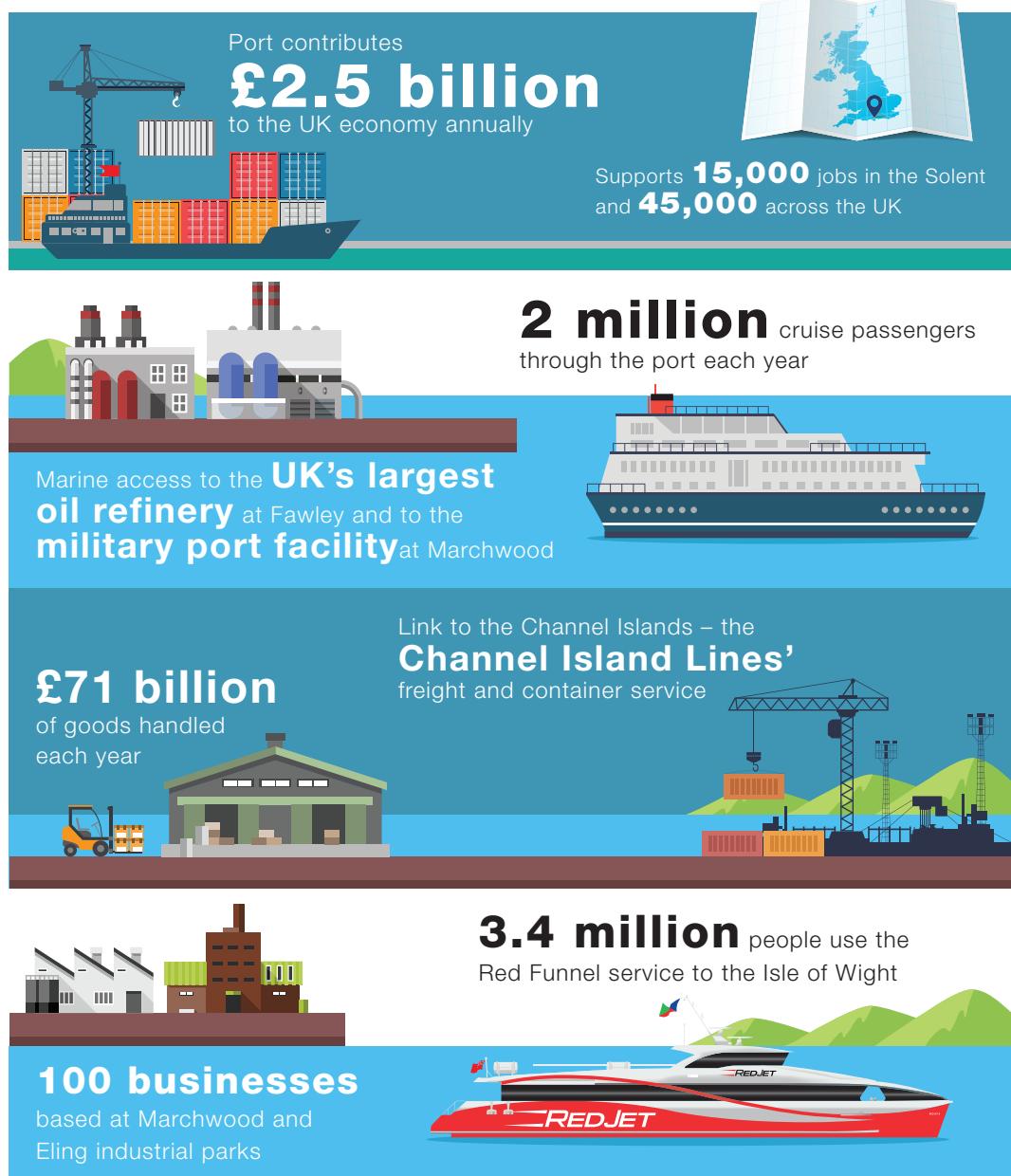
We are a key automotive hub in Europe served by 11 shipping lines providing direct access to over 52 ports in 40 countries every month. We handle around one million automotive units every year including heavy plant and machinery. Two-thirds of this volume is for export to the global marketplace.

The port is home to the Fawley Refinery – the largest in the UK. It has a mile-long marine terminal that handles around 2,000 ship movements and 22 million tonnes of crude oil and other products every year. In addition, we handle more than two million tonnes of products including scrap metal, fertiliser, fresh produce and grain.

More rail freight (by %) is accommodated here in Southampton than any other UK port. We have four dedicated rail terminals with up to 30 trains using the terminals every day. This means that we reduce the number of road movements by more than 500,000 every year.



## OUR OPERATIONS AT A GLANCE



## LOOKING TO THE FUTURE

Over the next five years ABP Southampton will



# The city council's plan to improve air quality

## THE QUALITY OF OUR AIR

Air quality in the UK has been monitored by the Government since the 1970s and it continues to improve. Despite this improving trend, there is more we can all do to reduce emissions further.

The European Union Ambient Air Quality Directive sets legal limits for concentration of air pollutants. For nitrogen dioxide ( $\text{NO}_2$ ) there are two limits to protect health:

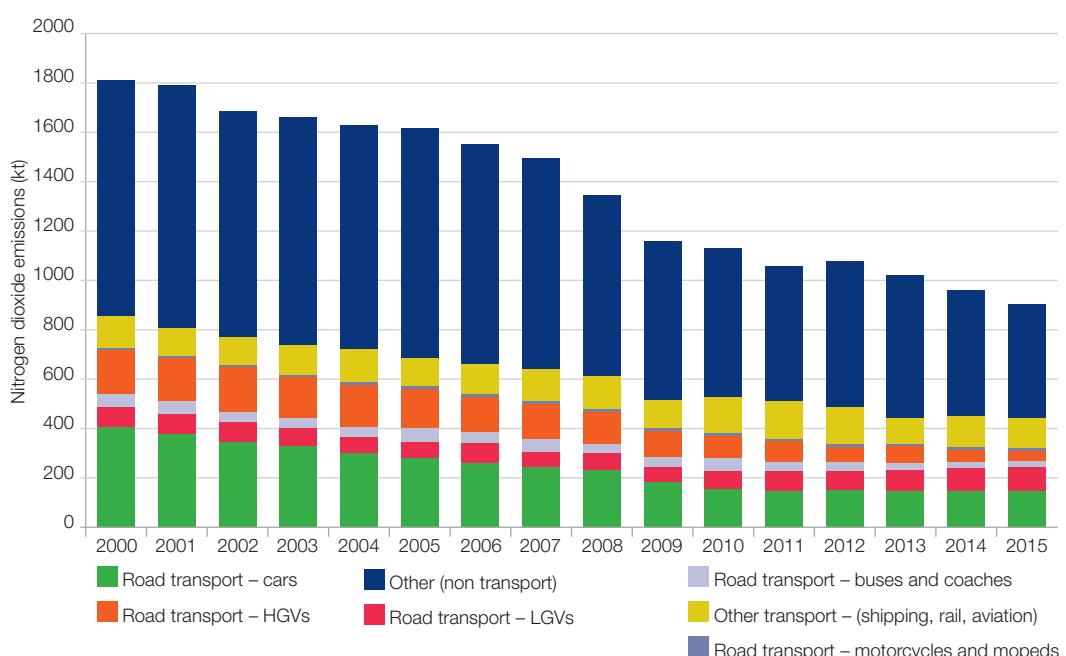
- The average annual concentration of nitrogen dioxide should not exceed 40 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ).
- The average hourly concentration of nitrogen dioxide should not exceed 200 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) more than 18 times per year.

In 2015, the Government released a national plan for reducing roadside  $\text{NO}_2$  concentrations. Southampton was identified as one of five cities that would be required to act to improve air quality by 2020. In June 2018, Southampton City Council released proposals for a Clean Air Zone.

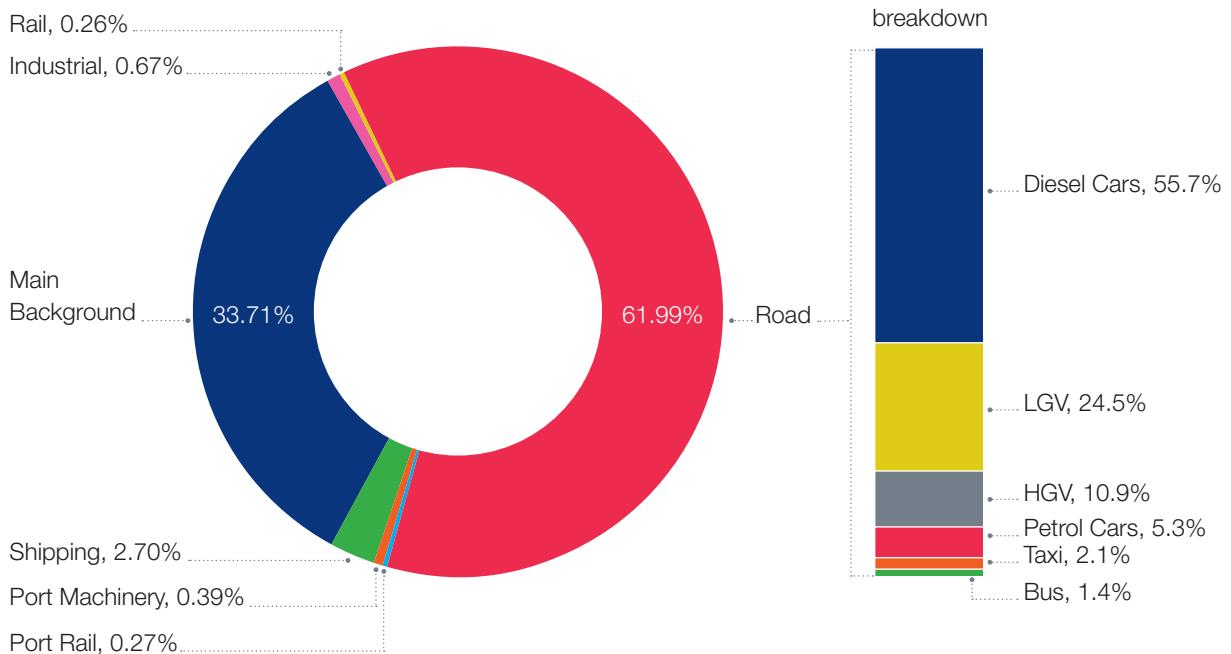
As part of the Clean Air Zone assessment, the council has undertaken air quality modelling to 2020 and identified that road traffic is the main cause of  $\text{NO}_2$  concentrations, followed by commercial and domestic background sources.

By 2020, the council forecasts one location within the Southampton City Council area – the A33 (Millbrook Road) in Freemantle – that exceeds 40  $\mu\text{g}/\text{m}^3$ .

*Annual UK emissions of nitrogen dioxide since 2000*



A further breakdown of emission sources at this location is provided below:



Data source: Southampton City Council Draft Outline Business Case

The modelling also forecasts that the New Forest area meets the 40 µg/m<sup>3</sup> objective.

The council's documents attribute NO<sub>2</sub> contributions from port activities, comprising port machinery and rail movements, to be around 1% of the total, with activities from shipping forecast to be between 2 and 6%.

The council is recommending to proceed with an option that seeks to charge buses, coaches, taxis and HGVs not meeting Euro 6 (diesel) or Euro 4 (petrol) standard to come into the city. The proposed charge for non-Euro 6 HGVs and coaches is £100 per day and £12.50 per day for taxis.



# A cleaner future – our work so far

## UNDERSTANDING THE CHALLENGE

We want to understand more about the air quality in and around the port so in 2017 we invested in monitors at locations across the port.

We're the first port in the UK to carry out monitoring like this and when we have results from a full year we'll share these with the council and publish them online.

These will give us a much better understanding of air quality at different times of the day and year, so we can target our action in the most effective way.

## PORT EMISSIONS AND HOW WE CAN IMPROVE THEM

We already know that port emissions come from three main areas – shipping, road and rail and port equipment.

Some of these sources we are able to tackle on our own and for others, we need to work in partnership with the people, businesses and industries which use the port on a daily basis.

**“We want to be the leading port in the UK for promoting sustainability across our operations.”**

*Alastair Welch, Director of ABP Southampton*



**OUR CUSTOMERS HAVE INTRODUCED 'CONSOLIDATION CENTRES' TO REDUCE THE NUMBER OF HGVS TRAVELLING THROUGH THE CITY TO THE PORT. DELIVERIES ARE MADE TO THE CENTRES OUTSIDE THE CITY, THEN CONSOLIDATED INTO FEWER MORE FUEL-EFFICIENT LORRIES TO TRAVEL TO THE PORT. THIS HAS REDUCED NITROGEN DIOXIDE EMISSIONS BY 90% IN SOME CASES.**



### WHAT WE'VE DONE SO FAR

It's recognised that cars, vans, buses and HGVs are the main cause of nitrogen dioxide levels in the city.

We know we can't do without all of these vehicles, as they carry people and goods in and out of the city, however, we can make sure they operate as efficiently as possible.

So, we've invested a significant amount to improve the rail and road networks and promote cleaner vehicles.

### RAIL IMPROVEMENTS

In 2011 we invested in lowering the rail track through Southampton's tunnels, so more containers could be carried by rail. Now, between 32% and 40% of containers arrive or leave the port on trains – the largest proportion at any UK port.

Moving goods to rail from the road reduces the number of HGVs on the road by half a million each year – and also reduces nitrogen dioxide emissions by 80%.

However, the Government has recently removed a national subsidy to encourage movement by rail, which could reverse this trend. Restoration of this subsidy could save around 120,000 HGV movements on the city's roads each year.

### TRAFFIC MANAGEMENT

Travel by road is necessary for people and goods. HGVs very rarely travel to the port in peak hours but we've worked with Southampton City Council to improve access to the port, reduce traffic congestion and promote cleaner vehicles.

We have:

- introduced a 'traffic management system' to streamline the arrival of HGVs in the container terminal and their movements around the port
- worked with the council to provide new access to the Eastern Docks and around Town Quay – significantly reducing congestion
- held regular meetings with the city council, Hampshire County Council and Highways England to help manage the transport network as efficiently as possible
- an ongoing 'no idling' campaign to encourage drivers to switch off engines when vehicles are not moving or working – to cut emissions.



## OUR FLEET

We are replacing our own fleet of vehicles with electric ones and by the end of 2018 we'll be running 45% on electric.

Our aim is to run only electric or hybrid vehicles by 2020, as a greater variety of cars and vans become available.

As there isn't currently an appropriate electric minibus on the market we're working with Ford on trials to develop one.

We've also installed electric car charging stations for our fleet – which are free for our staff and visitors to use.

## OUR PARTNERS' FLEETS

It's widely accepted that Heavy Goods Vehicles (HGVs) make a significant contribution to nitrogen dioxide in our air.

To combat this, manufacturers have only been allowed to build diesel vehicles with an output of less than 0.4 g/kWh since 2014. These vehicles are called EURO 6 compliant.

These new vehicles reduce nitrogen dioxide emissions by over 80%.

We're encouraging all transport companies arriving at the port to only use these newer, compliant lorries. Around 60% are already compliant and we want to reach 100% as soon as we can.

## SHIPPING

The main source of emissions from ships is the marine diesel used to power them as they enter and leave the port, and to operate them when they are stationary in port.

Currently, all commercial vessels visiting Southampton must run on low sulphur fuel or be fitted with an exhaust gas cleaning system to meet the requirements of the port. This is a standard that is not required by all UK ports.

To build on this, we plan to introduce a green tariff that rewards cleaner vessels using the port.

We want to be the first UK port to provide shore power. Although this is technically challenging, about 20% of cruise ships would be able to take advantage of this facility, instead of using their engines.

We're also welcoming other initiatives by our shipping partners to reduce emissions, including:

- £12 billion investment by the cruise industry in ships powered by 100% liquefied natural gas (LNG) – which have virtually no emissions – we already have these using the port
- LNG powered car ships calling in the port weekly
- trials of hybrid tug vessels
- solar panels on car ships to generate clean, renewable energy while in port.

We're also working with local companies to be the first UK port to develop the systems and technologies to upgrade our patrol vessel to use hybrid technology.



## CYCLING

Cycling produces zero emissions and is a healthy way to get to work and around the city. To support this, we've:

- launched an upgrade of our cycle lane network with access via Dock Gate 20
- provided better shower facilities for staff
- upgraded our 'Cycle to Work' package for staff
- provided secure bike boxes
- promoted the city council's 'My Journey' campaign to encourage residents and visitors to cycle, walk or use public transport more.

## PORT ACTIVITIES

Cranes, equipment used to move cargo around the port and fixtures such as lighting also require energy and are responsible for emissions which can affect air quality.

We and our port partners have invested in a number of innovative features to reduce emissions from these daily activities.

For example, our partner DP World, which runs many port activities, uses electric-powered cranes. These recharge as they work and feed excess energy into the port's electrical network.

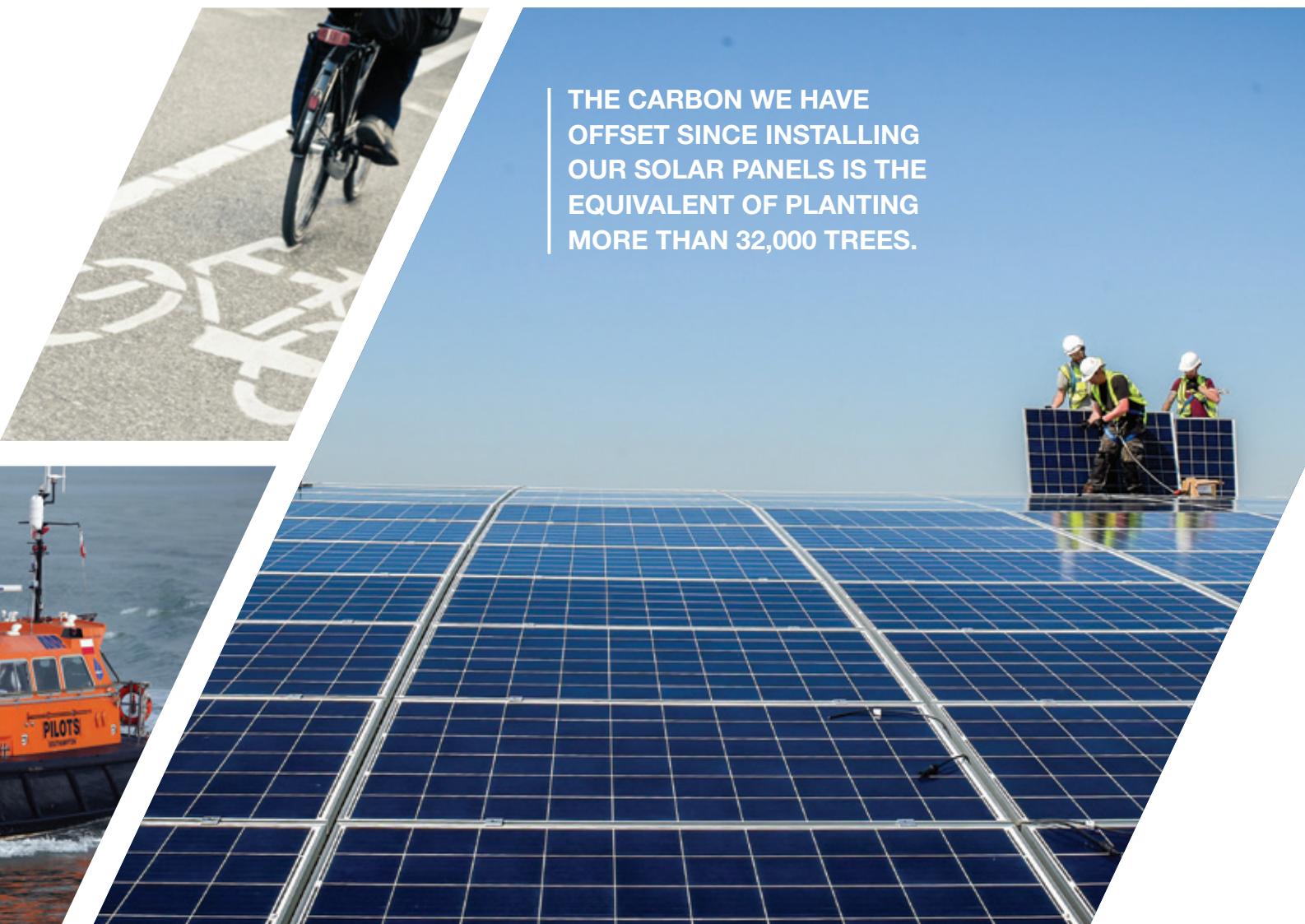
DP World has also:

- introduced electric vehicles to transport staff about the port
- begun replacing its forklift trucks with the newest, most efficient models
- started to replace its straddle carrier fleet with newer more efficient models – now more than 40% are less than five years old.

## RENEWABLE ENERGY

We've reduced our power consumption by 25% in the last 10 years, despite a significant increase in activity at the port. We've also recently installed solar panels, generating 20% of our own electricity from renewable sources.

THE CARBON WE HAVE  
OFFSET SINCE INSTALLING  
OUR SOLAR PANELS IS THE  
EQUIVALENT OF PLANTING  
MORE THAN 32,000 TREES.



# A cleaner future – what's next

We're proud of what we've achieved so far, but we know there's more to do. Here are some of the things we are working on to improve air quality in the next five years.

Redesign the container terminal entrance to reduce emissions.



Introduce 'green walls' to improve local air quality.



Research new air quality technology and initiatives with universities.



Assess options for non Euro 6 vehicles tariff to enter container terminal and all dock use vehicles to be of the lowest emissions.



Upgrade all port street and high mast lighting to LED.

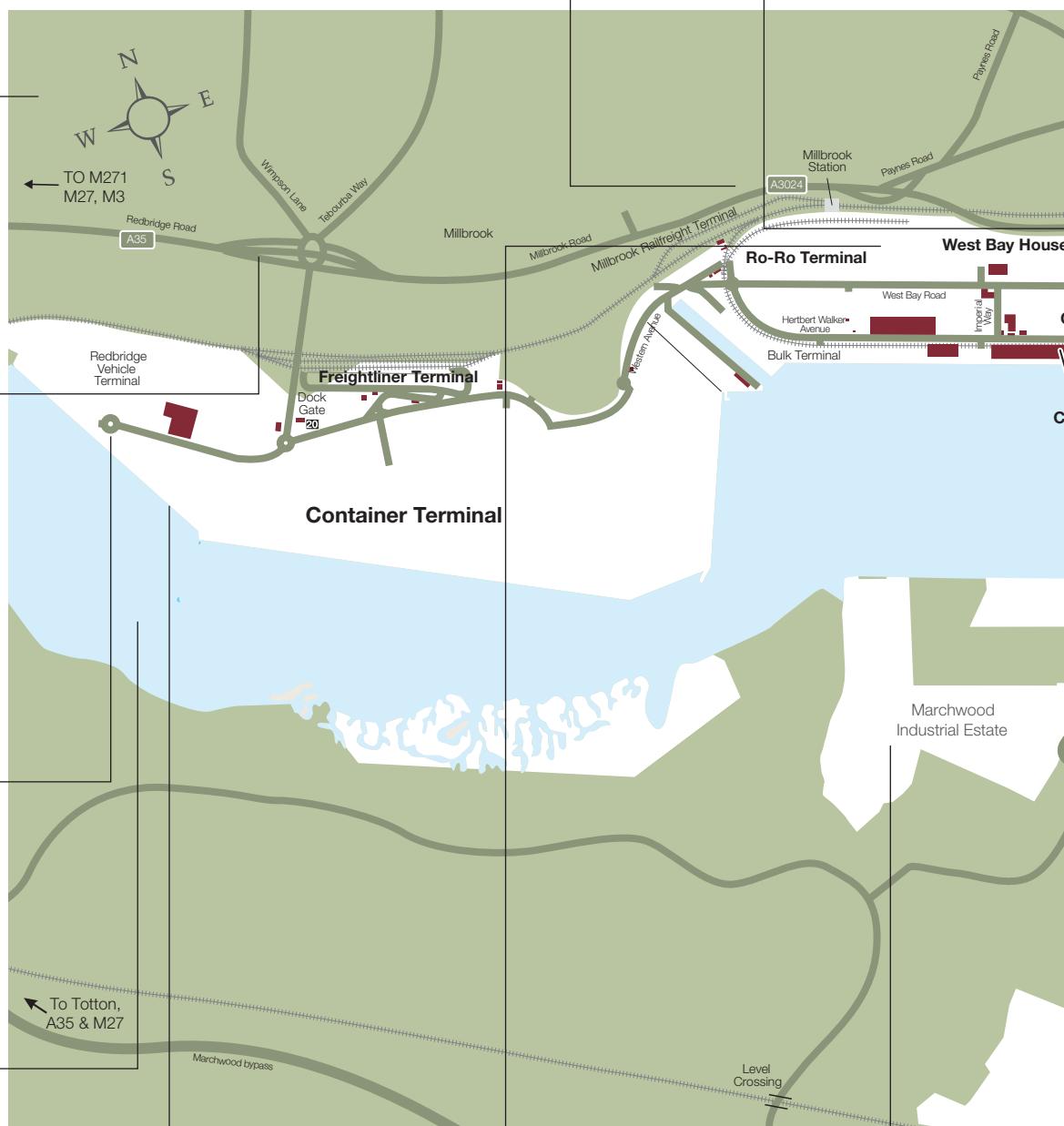


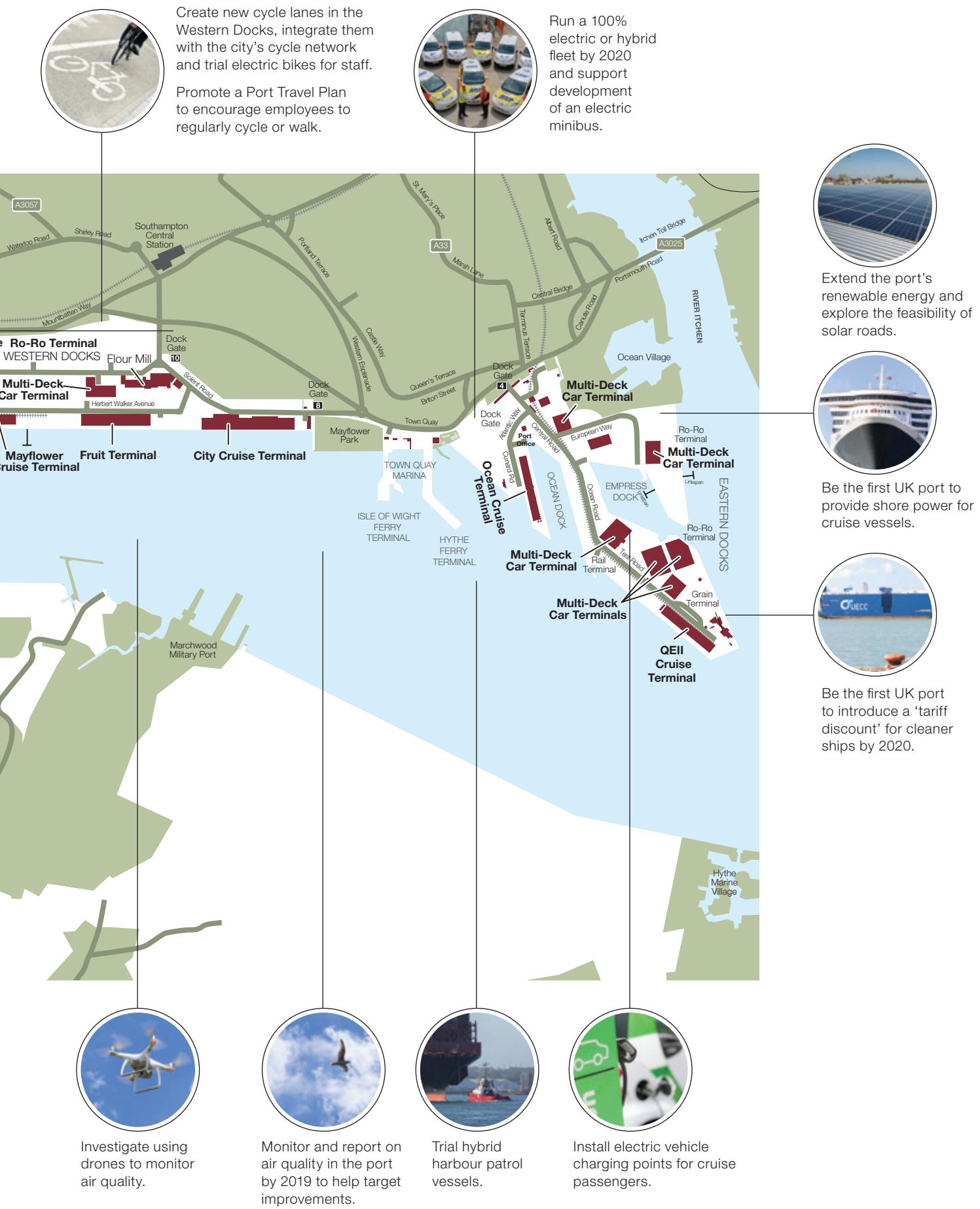
Lead the Port Air Quality Group to promote best practice and membership of the council's Clean Air Network.

Work with DP World to bring in equipment with the highest emission standards and automatic switch off.

Work with Government to enhance a rail freight subsidy.  
Work with Network Rail to extend our rail network and take more HGVs off the road.

Explore the installation of an LNG filling station for heavy vehicles.





# Together we can achieve more

As the port authority, we take our responsibilities to the residents of Southampton very seriously.

However, we know we can achieve much more when we work in partnership – with our partners who operate in and out of the port, and with the wider city.

Over the next five years, we'll continue our Port Air Quality Group to bring together everyone inside the port, sharing best practice and exploring ways to improve standards.

Outside the port we'll continue our collaboration with Southampton City Council, Hampshire County Council, Highways England, Network Rail and rail freight companies.

We'll work alongside Southampton City Council as it implements its city-wide air quality strategy to 2025 and the Clean Air Zone in the city.

## CLEAN AIR ZONE

Clean Air Zones are being introduced in five cities in the UK and can be designated as charging or non-charging.

The Clean Air Zone was implemented in Southampton on a non-charging basis in 2017, with a focus on better traffic management and re-routing traffic.

The council is consulting on plans to introduce charges for buses, coaches, taxis and HGVs if these vehicles don't meet agreed emission levels.

We are committed to working with the council to continue the trend of reducing emissions in the city without the need for a city-wide charging regime.

**WE WILL MONITOR AIR QUALITY AND REVIEW EMISSION SOURCES TO IDENTIFY AREAS FOR IMPROVEMENT.**



# Our approach to reducing emissions – air quality action plan

<b>Area</b>	<b>Initiative</b>	<b>What we'll do</b>	<b>Timescale</b>
<b>Management and monitoring</b>	Port Air Quality Group	Bring together members of the port community to promote best practice	3 meetings per annum
	Port Wide Emissions Monitoring	Monitor and report on air quality in the port to help target improvements	2019
<b>Area</b>	<b>Initiative</b>	<b>What we'll do</b>	<b>Timescale</b>
<b>Shipping</b>	Shore Power	Understand benefits of shore power for cruise vessels and be the first UK port to install shore power technology for cruise vessels	2020
	Green Vessel Tariff	Introduce a tariff reduction for the cleanest vessels	2019
	ABP Vessel Review	Work with local companies to develop hybrid technology marine craft	2023
<b>Area</b>	<b>Initiative</b>	<b>What we'll do</b>	<b>Timescale</b>
<b>Transport and access</b>	Rail Freight Subsidy	Work with Government to restore rail freight subsidy	2019
	Electric Vehicles	Run 100% electric fleet for small cars and vans	2020
	Electric Vehicle Charging	Install electric vehicle charging points for cruise passenger vehicles	2019
	Cleaner Vehicles	All dock use vehicles to be of the lowest emissions	2020
	Reduce Emissions	Assess options for non Euro 6 vehicles tariff to enter container terminal	2020
	Cycle Lane Provision	To improve cycle provision in the Western Docks and reduce dependence on cars for employees	2023
	Sustainable Transport Options	Promote the My Journey sustainable transport initiative to the wider port community	2018
	No Idling Campaign	Reduce unnecessary emissions from waiting vehicles	2018
	Rail Infrastructure	Work with Network Rail to extend rail capacity into the port	2019
	LNG Vehicle Infrastructure	Explore the installation of an LNG fuel station for commercial and on-dock vehicles	2019
<b>Area</b>	<b>Initiative</b>	<b>What we'll do</b>	<b>Timescale</b>
<b>Plant and Equipment</b>	Energy Efficiency	Complete LED high mast lighting programme	2019
	Energy Efficiency	All street lights within the port to be LED	2020
	Solar	Maximise solar energy schemes within the port estate to reduce carbon footprint	2021
	Solar Roads	Commission research into feasibility options	2020



## Get involved

We'd really like to hear your views on our work to improve air quality and your ideas for new initiatives, technology and partnerships.

If you are a city resident, community group, local business or simply want to get involved, please get in touch and share your thoughts.

In 2019, we'll also be publishing a **port sustainability report** for the Port of Southampton, when you'll be able to hear more about our long-term plans and targets.

Here's how to contact us:

**Email** [contactus@abports.co.uk](mailto:contactus@abports.co.uk)

**Twitter** @ABPSouthampton

**Facebook** @abpsouthampton

Follow our progress online at **abports.co.uk**