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RACE TO ZERO

REPORT

# UITP DECLARATION ON CLIMATE LEADERSHIP

AN UPDATE ON IMPLEMENTATION 2020

AUGUST | 2020



The International Association of Public Transport (UITP) is the only worldwide network to bring together all public transport stakeholders, sustainable transport modes, vehicle manufacturers and technology providers. UITP has more than 1,800 members in 100 countries and represents the key players needed for zero carbon urban mobility.

## ABOUT THIS REPORT

This report provides a final update on implementation of the individual actions pledged under the UITP Declaration on Climate Leadership by public transport undertakings launched at the UN Secretary General's Climate Summit in 2014. This acts as a stock take of collective efforts made by the 110 global public transport organisations which can provide an inspiration for action to help inform the update of Parties' Nationally Determined Contributions (NDCs) and achievement of the Sustainable Development Goal target on public transport (SDG 11.2).

## UITP DECLARATION ON CLIMATE LEADERSHIP – A 2020 UPDATE OF IMPLEMENTATION

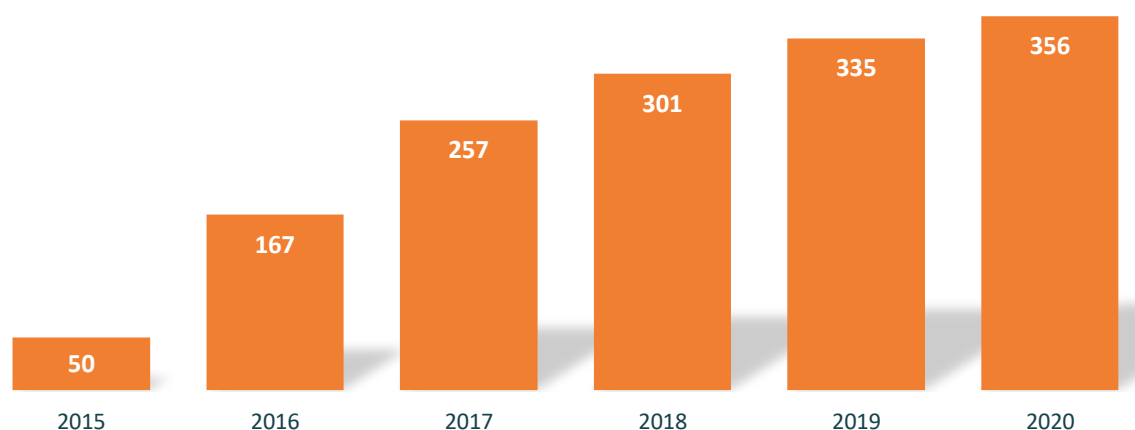
UITP's Declaration is a recognised non-Party stakeholder collaborative initiative under the "UNFCCC Marrakech Partnership for Global Climate Action" which brings together state and non-party stakeholders to support implementation of the Paris Climate Agreement.

The Declaration affirms the sector's commitment to delivering on the objectives of the Paris Agreement and in 2014, pledged to **deliver over 350 projects to climate action in over 80 global cities**. The lessons learned from delivering these projects are shared with Parties to provide an inspiration for action and support implementation of local and national efforts.



### UITP Declaration on Climate Leadership 2015 to 2020

356 projects pledged & delivered



The projects help to reduce corporate carbon footprints, for example through improved vehicle and building efficiency, or aim at giving a greater role to public transport in urban mobility which helps to decrease regional carbon footprints, for instance through new bus, tram and metro lines. **Implementation of the projects has steadily grown over the years and efforts can now be seen in all of the projects pledged in 2014.** The Annex of this report details the individual efforts in key areas of action made by the different public transport undertakings.

## RACE TO ZERO – DECARBNISING URBAN TRANSPORT

The decarbonisation of the transport sector by 2050 is possible, but will require an immediate and concerted turnaround of global policy action. **UITP strongly believes that the most affordable but largely overlooked way to achieving decarbonised urban mobility is to provide people with attractive clean transport options such as public transport, walking and cycling.**

UITP is committed to decarbonise the sector but with it will bring strong overall benefits including clean air, reduced noise, accident-free traffic and improved quality of life in cities, altogether generating major benefits for citizens and national economies. Such a level of ambition will require cities to become leaders and **UITP and its members are dedicated to supporting the achievement of such a goal by fostering practical change within public transport undertakings which will help make a major contribution to the Paris Agreement and the SDGs.**

## RACE TO ZERO – THE SIX STEPS TO DECARBNISING PUBLIC TRANSPORT

The quickest and most effective strategy to decarbonise people's urban mobility emissions is to encourage people to use alternative low and zero emission means of sustainable transport. **UITP has identified the six key steps to that can not only provide public transport undertakings with a framework to review their own measures to decarbonise their emissions but also provide cities and national governments with a step-by-step approach to encourage a modal shift that can provide people with an attractive, affordable and zero emission form of urban mobility.**

The components are based on experience from delivering action on the ground under the Declaration and should be seen as an overarching common framework. A key expectation of an NDC update – a process that gears up at COP26 - is for governments to accelerate their carbon-cutting over the next decade. Through the UITP Declaration, **we are positioned to share successful best practices and lessons learned from delivering action on the ground so as to provide an inspiration and framework for local and national action as part of this process. In doing so, this can help to drive change in local and national policy to enable the public transport to be fully accounted in the NDC update process.**



## The Six Steps to Decarbonise Public Transport



## RACE TO ZERO – NEXT STEPS FOR NDCs & THE UITP DECLARATION

Sustainable urban mobility based on public transport is necessary for countries to deliver on their NDCs and SDGs so it is imperative that the sector is enabled in all transport, climate and sustainable development policies. Investments in low and zero carbon public transport yields substantial, long-term benefits by increasing social cohesion and economic growth. **Integrated mobility solutions based on the backbone of public transport has the potential to transform cities and countries into more efficient, low carbon, clean air, people-centred and planet-sensitive solutions. It is therefore imperative that all updated NDCs in 2020 and beyond include public transport interventions.**

The global public transport sector, through the UITP Declaration on Climate Leadership, stands ready to support the development, capacity building, and implementation of national and city-level actions. In this spirit, UITP aims to continue to monitor progress against the Declaration's wider goal of doubling the modal share of public transport through SDG and NDC assessments. UITP also aims to contribute to the UNFCCC NDC update process by sharing best practices from the implementation of public transport interventions linked to the Declaration, and by developing guidance to support governments and transport stakeholders in the NDC process.





## ANNEX

### IMPLEMENTATION SINCE THE UN SECRETARY GENERAL'S 2014 CLIMATE SUMMIT

#### PUBLIC TRANSPORT: BUSES – LOW CARBON VEHICLES AND TECHNOLOGY

- Through the Zero Emissions Urban Bus System (Zeeus) project, UITP is supported the uptake of electric buses across Europe. Since April 2015, **electric buses** have been running on the demonstration line 14 in the **City of Munster (Germany)** with three fast charging stations primarily powered with green power from a photovoltaics facility. In October 2017, UITP launched the ZeEUS eBus Report#2 during the Busworld 2017 Expo in Kortrijk, Belgium (24 October 2017) which provides an overview of high capacity electric buses in Europe. In 2019, UITP opened a regional training centre in Shenzhen (China) which specialises in bus planning and deployment, including on all aspects of electric buses.
- As of August 2015, **Seattle (USA)** in addition to the testing of **electric buses**, **new electric trolley buses** have been rolled out using up to 30% less energy than the current fleet. In 2017 it was confirmed that they will add 120 new all-electric trolley buses and as of February 2017 more than 78% of the fleet was either **hybrid** or electric. In March 2017, after extensive stakeholder engagement, the undertaking outlined their plans to achieve a zero emissions public transport service by 2034. The motorbus fleet is 100% hybrid or electric by end 2018 which are at least up to 30% more fuel efficient than the diesels being replaced.
- **Darmstadt (Germany)**, the city conducted the second testing of **electric buses** on their line L in July 2015. Regular scheduled services then commence with the buses from spring 2018 onwards and the entire bus fleet is anticipated to be fully changed over to electric operation by 2025.
- **Montreal (Canada)**, 2015 saw out-of-service testing and in-service testing with passengers helping scale up the **electrification of public transport**. In addition, a new system was set up allowing users to track their buses in real-time to know when the next bus will arrive at a designated station has since been rolled out. In September 2017, it was announced that 40 more electric buses will be put into service to advance the city's electrification plans. A year since its initiation trial it was reported in 2019 to have saved 113 fewer tonnes of GHG, the equivalent as driving 500,000km by car.
- **Laval (Canada)**, in April 2016, the testing of **electric buses alongside hybrid buses** commenced with 18 in total, which will help to achieve their goal to reduce emissions by 50% by 2031. In 2018, it was announced that the public transport provider will install equipment for the first roll-out of a fully electric bus line and add **new technologies to streamline boarding for passengers**.
- In the **city of Gdynia (Poland)** in April 2015, the operator started using **new battery hybrid trolley technology** which will help to reduce energy consumption by 3%.
- In **Paris (France)** since June 2016, the first 100% **electric bus** line is in operation and by 2025 the goal is to field a 100% ecological fleet in the Paris region consisting of buses running solely



on electricity (80%) and buses using renewable gases (20%) reducing greenhouse gas emissions by 80%. 2017 also saw the **first driverless bus run in the capital**. In early 2018, the city launched the largest tender in Europe to order potentially 1,000 electric buses to help realise their long-term goal.

- **Washington (USA)** was adding a total of 533 **hybrid buses** to replace its diesel bus fleet as announced in 2016. In 2018, a new fleet of buses took to the road in May, including 14 **electric buses** – making it the largest electric bus fleet in the DC region, and one of the largest electric bus fleets nationwide.
- Two **electric buses** started running in **Helsinki (Finland)** at the start of 2016 and the construction of **charging stations** began in spring of 2017. A further 12 electric buses came into service by the end of 2017.
- The **city of Belgrade (Serbia)** September 2016 saw the commissioning of five new **electric buses** covering a whole public transport line.
- In July 2015, **London (UK)** announced that two further bus routes will operate entirely with **electric buses** from the autumn alongside **hybrid buses**, lowering carbon emissions and helping to improve London's air quality by reducing 408 tonnes of CO<sub>2</sub> and 10 tonnes of NO<sub>x</sub> per year. In 2016, all 800 New Routemasters are in passenger service, reducing CO<sub>2</sub> emissions by 27,500 tonnes a year. Over 1,400 older buses have been **retrofitted** reducing their emissions by 88% and at the end of 2016, the world's first double deck **hydrogen bus** was unveiled. A further 11 **electric buses** were also rolled out at the start of 2018 meaning that there are close to 200 fully-electric single deck buses now operation in the Capital.
- **Cologne (Germany)** received its first **e-bus** in November 2015 and at the end of 2016 a new line 133 was officially converted to fully electric. In 2018, it was announced that an order of **30 fuel cell buses** were placed with the first of which delivered in spring 2019.
- In **Campinas (Brazil)** the addition of 10 new **electric buses** during 2017, making it one of the largest electric bus projects in the country.
- **Barcelona (Spain)** started experimenting with four pure **electric buses** and using **smart technologies**. This approach will see the progressive electrification of the bus fleet, for better efficiency as well as for environmental reasons and their new **Orthogonal Bus Network** will help to save 5,000 tonnes of CO<sub>2</sub> per year. Also, in February and March 2016, Barcelona introduced 27 new **articulated hybrid vehicles** into the fleet. Bringing the total number to 159, the most advanced vehicles achieve consumption and emission reductions of up to 30%.
- Tests are also currently under way with three **e-Buses** in the centre of the city of **Hannover (Germany)** with a **rapid charge** facility (within 4 to 6 minutes). New insights can be gained on how economically viable it will be for scaling up and the project is anticipated to save at least 200 tonnes of CO<sub>2</sub> per year.
- On June 15 2015, a **new bus service** (route 55) started between Chalmers/Johanneberg Science Park and Lindholmen Science Park (ElectriCity) in **Gothenburg (Sweden)**. The three demo buses run on **renewable electricity** and are entirely emission-free. In June 2018, a further two **all-electric articulated buses** came into service which will provide more people in the city an attractive alternative to taking their own cars. In 2020, it was reported that so far, more than 10,000 people have visited ElectriCity, route 55 and route EL16.



- **Calgary's (Italy)** commitment to electrify their bus fleet also took a giant step forward during 2015 following the purchase of 6 **full electric trolleybuses**, which were delivered at the end of the year and tested no later than February 2016 through the creation of a **new bus line**. Further **upgrading of the fleet** now means that Calgary has one of the youngest and environmentally friendly fleets in Europe. The renewal of the city's trolleybus fleet has been completed through the introduction of a total of 32 new trolleybuses by 2016, guaranteeing zero emissions public transport by **replacing all traditional fuel powered technologies**, such as air conditioning units, which are now run by electricity powered solutions.
- On 18 December 2014, the city of **Hamburg's (Germany)** public transport operator launched Europe's very **first "innovation line"**. Low carbon and ultra-low carbon buses (**electric, hydrogen and fuel cell technologies**) are tested on the bus line 109, used by some 15,000 passengers on a daily basis. Hamburg's target is to purchase only emissions free buses as of 2020 with 30 electric buses ordered in 2018.
- In **Oslo (Norway)** testing continued throughout 2015 and the city aims to run all its public transport using renewable sources by 2020. The city has been **operating electric and fuel cell buses running on hydrogen** since the Summit. In 2018, Oslo has announced the procurement of 70 new electric buses, which will take up service this year.
- In **Aberdeen (UK)**, in its first year, the **hydrogen bus fleet** had travelled 250,000 miles by March 2016 and 15 new hybrid buses entered the bus fleet in 2016 which are 30% more efficient than the ones they replaced. In 2018, it was announced that Aberdeen will receive a further 10 hydrogen powered buses to double their existing fleet.
- Since 2015, the public transport operator in **Flanders (Belgium)** is deploying 138 new low floor **diesel-electric hybrid buses** in 6 Belgian cities and towns, helping reduce 3,500 tons of CO<sub>2</sub>. The organisation also enhanced its eco-driving program as well as participating in two demonstration projects: one in Antwerp involving the operation of 5 **hydrogen fuel cell buses** (in collaboration with manufacturers such as Van Hool) and another one in Bruges putting up a testing ground for inductive charging of 9.65 m **electric city buses**.
- In the capita, **Brussels (Belgium)** inaugurated its first fully **electric bus** in the summer of 2018 linking the city's shopping districts. After a period of tests, a further 6 electric buses will be added to the fleet which will serve the city centre.
- In **Rosario (Argentina)**, 12 **electric trolley buses** were shipped with services running in the summer of 2017.
- In **Bogota (Colombia)**, the first **electric bus** was unveiled in the summer of 2015 which complements the 230 and more **hybrid buses** already in operation. The electric bus which is now in service in 2018 runs on 100% **renewable energy source** and saves 135 tonnes of CO<sub>2</sub> emissions each year, the same as around 6,200 trees.
- In **Vienna (Austria)** 12 innovative **electric minibuses** were purchased in 2015 reducing emissions by 300 tonnes annually. This will help deliver on the city's strategy for improved bus efficiency with 75 **new Euro 6 vehicles** added in the same year with the aim of developing a zero emissions public transport service in the city centre.
- **Liechtenstein's hybrid buses** are in use reducing around 40 tonnes per year and upgrades of the fleet have the potential to reduce 30% of fuel.



- The city of **Differdange (Luxemburg)** saw the running of **electric buses** in the second quarter of 2017 following the purchase of 4 electric buses at the end of 2016 which will reduce like for like emissions by 80%.
- **Bangalore (India)** has introduced 50 **hybrid diesel-electric 'green' buses** from 2016, the first in the country. These buses are expected to save 30% diesel and also check harmful gas emissions.
- **Belgrade (Serbia)** received five **electric buses** in 2106 which are the first of their kind to enter into service.
- Since 2018, **low emissions buses using ultra-capacitor energy** have been used **on UK roads** helping to reduce emissions by 37%.

## PUBLIC TRANSPORT: BUSES – NEW BUS LINES / BRT

- By the end of 2014, 40 **new bus services** were introduced alongside new multimodal initiatives in **Singapore**. They are also doubling the number of new bus routes from 40 to 80, from 2015 to 2017. In addition, work started in 2016 on developing dedicated bus lanes and service enhancement programmes that will improve efficiency and reduce overcrowding by 85%. **Customised bus services** are to go on trial in 2018 which can better serve commuters by being on call.
- **Improved bus services and enhancements** on the **Greater Bristol Bus Network (UK)** will help to reduce emissions by 42,771 tonnes over the lifetime of the project. It is one of a number of sweeping changes to the **multi-modal public transport** system that aims to reduce by 16% per capita emissions from road transport in the region by 2020. Construction started in early 2015 and services started in 2017.
- In **Montreal (Canada)**, there are **now reserved lanes for buses** on 212 km of roadways, while 273 intersections are equipped with **priority traffic signals**, for a total of 287.5 km featuring bus priority measures. The public transport undertaking's target was to reach its 375 km target by the end of 2017 and in 2018, it was announced that the plan is to deliver 81,000 additional hours of service across the bus network.
- In **Birmingham (UK)** a **new bus line** came into operation in September 2016 which is helping to enhance the accessibility of city residents. The service includes '**roaming zones**' which will allow for the bus to deviate off its fixed route to pick up and drop off passengers wherever they like. The service includes the **latest technologies** and Wi-Fi, all helping to enhance the customer experience.
- **Helsinki (Finland)** was **reorganising bus routes** in 2016 to help provide a more integrated public transport offer. A **new bus network** was rolled out in North Eastern part of the city in August 2017 after years of work. The reform ensures bus services are provided where they are most needed. The aim is to **provide frequent bus services to train stations** as well as to the city centre – without forgetting local travel needs in the area.
- **New BRT projects** are underway in **greater Montreal (Canada)** where work continued in 2016 on a major 11km bus corridor and starting May 11 2015, a **new bus line (77)** serves the city, thus enabling persons with limited mobility to reach their destination more easily. In 2017, it



was announced that work would start on four **reserved bus lanes** over the summer which can help improve efficiency of bus operations by up to 20%.

- In **Edinburgh (UK)** a **new bus route** opened in April 2017 linking the city to the airport creating jobs for 45 new drivers and a further ten apprentice engineers. In September 2017, six new **electric buses** were put into operation helping reduce emissions and enhance capacity which is all part of their **Bus2020 strategy** which aims to reduce emissions by a further 42% by 2020.
- **Dakar (Senegal)** funding for a new **BRT bus line** was secured in 2017 and tendering for an operator was sought. The BRT is a key project in the government's COP 21 NDC. In the summer of 2018, UITP held a BRT training with the city to build capacity to ensure the successful delivery of the project.
- **Sao Paulo (Brazil)** in 2015 was awarded for implementing 320km of **exclusive bus lanes**, increasing average bus speeds by 21%.
- In September 2015, funding had been earmarked for a **BRT system in Campinas (Brazil)** which will serve 250,000 people each day. In 2018, further funds were released to ensure the extension of the network.
- In July 2016 a new 26km **BRT express corridor** was launched in **Rio de Janeiro (Brazil)**. The city will now have three corridors expected to carry approximately 500,000 passengers per day. One of the BRT lines (Transoese) alone is estimated to generate savings of 107,000 tonnes of CO<sub>2</sub> per year.
- In **Vienna (Austria)**, the extension of the underground line has also resulted in improvements in the **bus network with new lines added**. The changes have had an effect on 14 lines along with new bus hubs. Buses run longer so that passengers reach the first and last trains allowing for an **integrated sustainable public transport network**.

## **PUBLIC TRANSPORT: BUSES – CLEANER FUELS AND EFFICIENCY**

- The use of **renewable fuel** derived from the sugar cane used on BRT corridors in **Rio de Janeiro (Brazil)** has been implemented. It is 100% renewable and is estimated to reduce emissions by 90% when compared to diesel fuel.
- In May 2016, **Bangalore (India)** launched the implementation of an **intelligent transport system** which will help to improve the operational efficiency of the bus network as well as the wider transport network.
- In **Brisbane (Australia)** with a fleet of over 1,100 city route buses, real gains have been made in progressing **smart transmission functionality** and **eco-driving**, realising fuel savings of more than 3% and by 10% in 2017. In May 2015 Brisbane's buses became 100% low floor and wheelchair accessible, thereby encouraging broader patronage and reducing reliance on private vehicles. In addition, a third of the Council's fleet is running on **CNG** and from mid-2018 over 500 buses saw modifications to introduce **automated 5 minute idle shutdown and adapted gear selection profiles** which better meet terrain conditions all helping to improve vehicle efficiency.



- A **mass eco-driver training in Belgrade (Serbia)** will help to reduce around 3,000 tonnes of CO<sub>2</sub> annually and a fleet renewal programme completed in 2018 could also make it possible to reduce around 6,000 tonnes of CO<sub>2</sub> annually.
- **Seattle (USA)** reported a 6% improvement in transit efficiency in 2015 thanks in part to **eco-driving measures**. As of June 2015, approximately 70% of Metro's bus fleet was comprised of **zero emission electric trolleys or diesel-electric hybrids**. Metro's motorbus fleet was projected to be 100% hybrid or **electric** by 2019. These hybrid buses are up to 305 more fuel efficient than the diesels being replaced.
- **Waste coffee grounds** were used to power some of **London's (UK) buses** in 2018. Already, 6,000 litres of coffee oil have been produced so far and for every tonne of recycled coffee saves around 7 tonnes of CO<sub>2</sub>. In addition, **eco-driver training** programmes are helping to further reduce emissions from buses saving 30,000 tonnes of CO<sub>2</sub>. Such programmes are also being **extended to other stakeholders** such as logistics, taxis and even being promoted to private and fleet drivers.
- In **Helsinki (Finland)** in 2017 the authority laid out plans to pay bonuses to operators which suggest measures to reduce carbon and local emissions such as using **biodiesel**. The initiative alongside active **stakeholder engagement** will help to reduce 125 tonnes of CO<sub>2</sub> which will help to reduce public transport emissions by over 90% by 2025. In 2018, the scope was extended to include **biogas** and to 6 operators, emissions from bus services will decrease emissions by 15,000 tonnes of CO<sub>2</sub>. In addition, as reported in 2018, 16 new low emissions bus services with **driving style monitoring systems** will further improve the efficiency of operations and will be scaled up to a further 50 vehicles, which is all part of a goal for emission-free public transport.
- Since the Summit, **Bergamo (Italy)** has been gradually updating its fleet to use renewable methane and a proper methane filling station at its depots to help **phase out the use of fossil fuels from the network**.
- **Dakar's (Senegal) revolving fund** is helping **renew the informal transport fleet** with over 1,500 already renewed as reported in 2018 helping remove the oldest vehicles from the capital.
- In **Brussels (Belgium)** during 2015, the bus operator ramped up its **eco-driving programme** and has equipped 84% of its bus fleet with an electronic system of on-board indicators. The system gives drivers information about their driving behaviour in 'real time' to help them improve their driving style. Bus drivers are also given **personalized coaching sessions**, which started in 2015 and that all the drivers will have received coaching by 2016. In 2017, it was reported that 2,000 drivers had been trained reducing emissions by 7%.
- The bus operators in the **Ruhr area (Germany)**, following the instillation of **a fleet management system** in one of its depots, it has allowed improved operational efficiency helping reduce fuel consumption by around 5%. This system has now been installed across the entire fleet saving each year over 125 tonnes of CO<sub>2</sub>.
- In **Laval (Canada)** at the end of November 2016 the city started work following **internal stakeholder engagement** to implement five measures that that will be the largest work to prioritise and improve public transport in Laval. This ranges from 13.4 km of **reserved lanes, 6 bypass lanes and 227 smart traffic lights** that represent 90% of all lights in the city as well as

**55 improved stops and shelters.** Riders can count on saving 5 minutes of travel time which will amount to 50,000 hours over the course of the year.

- In **Copenhagen (Denmark)** more **environmentally friendly buses** were in operation as announced in March 2017. With new contracts enforcing the operation of **cleaner Euro 6** buses, it will help to reduce emissions by 26%. New services resembling BRT lines opened in 2017 and are fuelled by **biogas** and emit 72% less NOx and 33% fewer particles than the existing buses.
- In **Leipzig (Germany)** in March 2017 it was announced that that 18 **new more efficient buses** will join the 14 already in operation received at the end of 2016.
- **Mexico City (Mexico)** saw in 2016 the adoption of **cleaner biogas buses** on the main bus line which is helping to update and clean the city's bus fleet. In September 2017, it was reported that 200 **CNG buses** had been added to the city's fleet.
- In **Washington (USA)**, in 2015 new **CNG buses** were put into service, replacing the city's oldest ones. With **improved lighting, real time information and improved safety features**, it is helping improve the customer experience and encourage a mode shift to public transport. In addition, the purchase of **new maintenance-of-way equipment** that meets the Tier 4 emissions standards will help to minimise particulate matter (PM) and Nitrogen Oxides (NO<sub>x</sub>) by 95% in 2016. It is expected that further measures invested in this and last year will result in a 5-10% reduction in diesel consumption.
- In late 2018, 481 **Euro VI gas buses** were deployed on the BRT corridor in **Bogota (Colombia)** helping reduce carbon emissions by 20% in addition to helping to reduce particulate emissions by two to three times. The system has 1.7 million passenger journeys made on it every day and thanks to the new vehicles, capacity will be expanded by 30%. In 2017, the project incorporated its first electric bus and public awareness of transport issues has increased.
- In 2019, it was reported that 16 **new low emissions buses** entered into **Helsinki (Finland)** which will service 2.8 million route km during the year.
- **Bremen (Germany)** is targeting the use of **cleaner fuels** in the bus network which will help to reduce their passenger footprint by 2020.
- In February 2018, **Lisbon (Portugal)** has installed **traffic lights** which give **priority to buses** which can help reduce emissions by 30%.

## **PUBLIC TRANSPORT: TRAINS, TRAMS & METROS – NEW LINES AND UPGRADES**

- On September 12 2015, the **7.3-mile Light Rail Transit Project** in **Portland (USA)** opened, connecting communities between downtown Portland and North Clackamas County to the south. The MAX Orange Line incorporates **new vehicles** and active transportation amenities and a net zero multi-level **Park & Ride** facility. By 2030, it is estimated that the line will reduce 60,000 miles travelled per weekday by shifting car travel to public transport reducing the amount of CO<sub>2</sub> by nearly 60,000 pounds per day, saving the region \$150 million per year in congestion costs and creating 1,500 direct and indirect jobs. In January 2019, it was recorded that ridership averages over 12,000 trips per weekday, and it continues to rise.



- April 2015 saw the opening of the **Prague Metro extension Line A (Czech Republic)**. Four new stations – Bořislavka, Nádraží Veleslavín, Petřiny and Nemocnice Motol – on the more than six kilometre metro route have now come into passenger service, with about 127,000 local people benefiting from increased access to public transport.
- **Rio de Janeiro (Brazil)** opened its **new metro extension** alongside new trains in the September of 2016 which is forecast to carry an additional 300,000 passengers per day. In October 2017, a 1.9km **tram extension** was also opened and construction on a **new three stop link** started in 2018.
- **Leipzig (Germany)** unveiled its **new trams** in February 2017 with room for 220 passengers which is expected to be installed on two **new lines** allowing for a better customer experience. The trams are now in operation and by the end of 2017 it was reported a total of 14 new trams were in service.
- In **Utah (USA)**, a **new double tracking project** was underway in 2018 on a **newly opened tram line** which will increase frequency of service that will help to attract around 1,000 new passengers per day.
- **Tyne and Wear (UK)** has seen 1.3 million more journeys on their network in 2015 as they progress with **renewing assets** (strategic programme to be completed in 2021), which will help to avoid 15 million more local car journeys per year. In 2018, the operator has begun the process to **replace the aging fleet**. In addition, in 2019 a **new public transport interchange was opened and is now catering new lines**, now welcoming 450,000 visitors a year coming to the town centre so providing first class public transport facilities and improved connectivity.
- Construction work started in May 2015 in **Casablanca (Morocco)** which expects to have 80 **additional kilometres of tramlines** running by 2022. Work on the first line of Casablanca's tram network began in January 2016 and the project was scheduled to enter into service at the end of 2018.
- The Second Avenue **subway extension** in **Manhattan (USA)** opened at the start of 2017. The new energy efficiency stations opened at 72<sup>nd</sup>, 86<sup>th</sup> and 96<sup>th</sup> Streets. The route is an extension of the Q Line, which now runs from the Upper East Side of Manhattan to Coney Island in Brooklyn.
- In **Birmingham (UK)** a new 0.7 mile **tram extension** launched in May 2016 has seen ridership increase 31%. Preliminary ground works have just started on a 1.2 extension of the tram line and is due to be up and running by spring 2021.
- **Sao Paulo (Brazil)**, **expansion projects continued** in 2016 and 2017 albeit at a slower rate than expected. This included station enhancements, the opening of 2.8km of **new lines** and the modernisation of equipment as well as **new trains**, all of which represents a 1,500% gain in CO<sub>2</sub> avoided thanks to the network. It also saw the adding of 3 **new stations** which is expected to serve 60,000 passengers per day. The overall expansion will also see the acquisition of 26 new trains.
- In September 2016, a new section of the **Moscow (Russia)** metro opened comprising of **three new stations**. Three other stations were completed in 2017. It will enhance the accessibility of around half a million people in the city and in October 2016 enhanced the connectivity of citizens through **technological upgrades** - from Wi-Fi connectivity, live communications



desks, cashless payment and new energy efficient metro trains. In addition, at the end of 2017, **new trains** were added to the system replacing the oldest cars, adding 15% more capacity.

- In **Vienna (Austria)** work is underway to **extend the underground** and tram line with 5 **new stations** opened and work on a **new underground line** started in 2018 alongside **modernisation of trams**.
- In **Montreal (Canada)** a **new commuter train line** service opened at the end of 2014 shortly after the Summit which is part of a wider 2020 plan which will reduce emissions by 300,000 tonnes of CO<sub>2</sub> per year. In April 2018, construction started on a 67km **automated light rail network** connecting the city to the suburbs and the international airport, which is expected to open in 2021.
- In **Munich (Germany)** work started in February 2016 on a **new 2.7 km tramway** which is expected to save 245 tonnes of CO<sub>2</sub>. In total, 22 **new trams** will also enter operation in 2018 adding extra capacity to the network
- In the metropolitan area of **Granada (Spain)** a **light rail line opened** in September 2017 which will cater for an extra four million journeys per year, which will result in a reduction of 15% in car use and 10% fewer emissions.
- **New extensions were launched in Bern (Switzerland)** at the end of 2015 in order to meet ever increasing demand for public transportation. In 2018, funding was approved for a **new 4.2km line** with 12 stops with ridership forecast at around 1,650 passengers/h at peak times.
- **New stops** were added to a 1.2km light rail extension to **Altenhagen (Germany)** in December 2015 and in September 2017 light rail stops were modified for **new vehicles** adding extra capacity to the network.
- In May 2016, **Stuttgart (Germany)** opened a 1.1km **light rail extension** helping to expand public transport and in December 2017 a new northern extension light rail line opened.
- **St. Petersburg (Russia)** reported in January 2017 the signing of a new contract that will deliver 40 **new railway cars** which are 30% more efficient than the current stock. The cars will be delivered in May 2018 which will also see around 430 new cars delivered in 2020.
- In **Toronto (Canada)**, June 2016 saw the **first extension to its tram network** since 2000. The 8.6-km Toronto-to-York subway extension opened to the public in December 2017 and by 2020 is expected to carry about 24 million passengers per year.
- **Singapore** saw the launch of **two new car trains** in 2016 resulting in shorter waits for 61,000 commuters as well as efforts to improve the accessibility of stations. A **new line extension** opened in the summer of 2017 which is expected to benefit 100,000 commuters by cutting commutes by 35 minutes and making them even greener.
- In February 2018, **Brussels (Belgium)** made a base order for 60 **new trams** which will be scaled up to 175. Deliveries will begin in 2020 which will help to increase the capacity of the fleet by 7%, helping to cater for more passengers.
- In the latter half of 2017, **Bern (Austria)** a newly designed and renovated square fully services by to **new tram track systems** was handed over to the public during a **car free day** to highlight the sustainable transport solutions available in the city.
- **Bremen (Germany)** opened its **new 5.5km tram network** just before the opening Summit which has helped the city develop an integrated seamless public transport network. In the



summer of 2017, **new trams** were ordered which began service in the spring of 2019, equipped with **regenerative braking, LED lighting and enhanced accessibility**.

- **Sofia (Belgrade)** saw the introduction of **new trams and lines** in 2016 alongside the construction of a third metro line. Currently 156 trams are running in the capital.
- In **London, (UK)** **new vehicles and four lines were modernised** and upgraded in 2016 better accommodating around 1 million passengers each day. A new line is opened recently and is expected to serve around 200 million people each year.
- The **expansion of the tram system in Innsbruck (Austria)** is all part of their 2020 plans, saving 1,405 tonnes of CO<sub>2</sub> per year. **New energy efficient trams** are expected to also enter service in the summer of 2018.
- In **Stuttgart (Germany)**, **a new extension to the light rail line - U12** - opened in December 2017 meaning that the city is now operating 80km of track.
- September 2018 saw the **opening of the 2.8km extension of Line 5 in São Paulo (Brazil)** enabling an important interchange for the city's citizens. Around 855,000 will use the interchange each day.
- **Bielefeld (Germany)** opened in 2015 its 1.2km **tram extension** which only took 14 months to complete.
- An agreement was signed in 2017 for a **second tram line in Bergamo (Italy)**. The branch is expected to be 9.9km with 16 stops along with a **new sustainable depot**.
- In January 2019, an 11 station **tram extension** was opened in **Innsbruck (Austria)** and is served by two lines. Twenty new low floor vehicles will be used to operate the line, helping to cut local emissions by four tonnes per day.
- **Singapore** celebrated the **opening of the third phase of the city's underground** Downtown line in October 2017 on the now 42km route. 141 **driverless metro cars** have been added doubling capacity to 500,000 passengers per day.
- In 2015, it was announced that new investments will bring **new trains to city of Montreal (Canada)**.
- In January 2019, a new 16.5km line with 25 **new trams** was launched in **Casablanca (Morocco)** enhancing the mobility of the city's citizens by 30% in recent years.
- New state of the art **electric trolleys were launched in Seattle (USA)** in 2015, which is helping to keep 42,000 metric tonnes of greenhouse gases out of the air up to 2020.
- In **Dresden (Germany)**, **a new light rail line (and additional rail cars) opened in 2020** helping to close existing gaps in the tram network, to improve the connection of residential areas and the university campus as well as the various university and research locations.
- Total operating testing started last year of a **new light rail in Guadalajara (Mexico)** which will transfer 233,000 passengers per day and allow for the **convergence between bicycles and mass public transport**.



## PUBLIC TRANSPORT: TRAINS, TRAMS & METROS – IMPROVED EFFICIENCY THROUGH TECHNICAL MEASURES, REGENERATIVE BREAKING AND ECO-DRIVING

- In the **UK**, a **major energy recycling project** was launched on the south-western rail franchise, which is the largest in the country, and when fully implemented is expected to save 15 million kWh of electricity per year (conservative estimate), enough to power more than 3,500 UK homes for an entire year.
- Innovative smart tram systems now in operation in **Linz (Austria)** further improving driving efficiency as well as reducing 85 tonnes of CO<sub>2</sub> and a 10.2% reduction of energy requirements.
- In **Bielefeld (Germany)** three inverters and a flywheel accumulator were introduced in 2015, saving of more than one gigawatt-hour of energy and in late 2017, **new energy efficient light rail vehicles** were ordered which are expected to go into service in 2020.
- In **Hong Kong (China)** it was recently announced that **regenerative breaking** is now standard design for all trains which can reduce energy use by 5-10% depending on the train pattern.
- **Brussels (Belgium)**, the introduction of **regenerative breaking** in the metro has led to annual savings of 3,060 tonnes of CO<sub>2</sub>. A feasibility study was also done in 2017 looked at possible ways to reduce energy consumption in the tram network to recapture energy from breaking. In two lines, 97% of energy could be reused alongside over 200 **new more efficient tram vehicles**.
- In **Leipzig (Germany)**, the 215km extensive tram network that is the third largest in Germany, with 13 routes travelled by 295 trams through 518 stations. Since 1 January 2018, the **tram network runs entirely on renewable energy**, also a first for Germany.
- **Stuttgart (Germany)** has the goal to become a '**zero emissions**' city by 2050 which is seeing the city use a range of renewable energy sources – **such as wind power** – to run city services such as the public transport network.
- **Rio de Janeiro (Brazil)** opened its **new metro extension** in September of 2016 featuring the latest technological enhancements including **regenerative breaking, enhanced driver efficiency and LED lighting**. In addition, the **trams – which can carry up to 200,000 passenger per day** - supplies power via a third rail on the ground and supercapacitors, modules installed on the roof of the tram, which **store and regenerate energy**.
- In **London (UK)**, **all new trains in 2015 have regenerative breaking** and on one line, when **combined with other technology on trains, enhanced driver efficiency, signalling and power systems** has cut the energy required to run services by 34%. In total, the technology could enable London Underground to save 5% on energy costs enabling it to reinvest in transport. In addition, it was reported in 2016 that a **new energy efficient signalling system** was completed on four key lines which will allow for a 33% increase in capacity by the early 2020's.
- **Several hundred solar cells** were installed in 2019 on the roof of **Münster's (Germany)** bus depot. Each year, they generate approximately 500.000 kilowatt hours of renewable energy,



which is not only used by the energy-saving LED lighting and tools of the workshop, but also to charge electric buses.

- **Kuala Lumpur (Malaysia)** will install a **new U-shaped viaduct solution** as reported in 2016. This will be accompanied by an extension of the metro totalling 37km in length which will help achieve the target set for a 40% modal split of public transport by 2030.
- A new public-private partnership in the **European rail sector** initiated a call for research projects in 2016 which aims at increasing reliability and punctuality of the sector by 50% by 2020. It was reported in 2018 that **'lighthouse projects'** have identified solutions which can make vehicles quieter, more efficient and up to 30% lighter all helping to reduce energy consumption
- In **Berlin (Germany)** additional orders for energy efficient trams (circa. 70) have been placed since the Summit which are now in operation because the population has been growing faster than had been anticipated, increasing transport demand, and to support the *Land's* strategy of moving to **non-fossil fuel public transport**.
- A **European Project** (Osiris of which UITP is a partner) was completed in 2015 which will help to enable a **reduction in the overall energy consumption** of EU urban rail systems by 10% by 2020.
- **Barcelona (Spain)** as seen in 2018, is installing **regenerative braking on two additional metro lines** which will make it possible to recover 30% of braking energy.
- **Rotterdam (Holland)** is reducing around 10 tonnes of CO<sub>2</sub> through its **regenerative braking** programme on their metro network which is also helping to power the station buildings.
- In **New York (USA)**, approximately 60% of IRT subway fleets reuse / capture 25% of **regenerative braking and upgrades of the power** lines as seen in 2018, it allows for the use of regenerative braking to be used on its newest rail cars.
- **Regenerative braking** has been installed on to **Vienna's (Austria)** public transport since the Summit. Individuals that use the network help to save 1,500 tonnes of carbon each year.
- **Munich (Germany)** has received the first of the 22 **double-tram units** that will help to keep up with ever increasing demand.
- In 2017, in **Antwerp (Belgium)** **new trams** entered into service on the busiest routes which can transport 359 passengers at once helping improve the efficiency of the network.
- In December 2018, **Paris (France)** saw the testing of the metro's **new automatic control system** which will help to reduce energy consumption by 20% and help improve passengers comfort, with reduced interior noise levels by 40%.
- In **Guadalajara (Mexico)** the implementation of regenerative braking generates electricity reinjecting produced during braking. This project has been saved of 4.5% of energy consumed compared with the year before implementation. This energy savings will be lifelong while this technology is maintained.

## COMBINED MOBILITY: WALKING, CYCLING, TAXI & CAR SHARING

- In 2016, a new **Munich (Germany)** housing development has created an **e-mobility service** so that its residents can rent electric vehicles for their day-to-day travel needs. In addition, launched in October 2015, the **new bike-sharing scheme** in the city will contribute to a further



reduction of CO<sub>2</sub> of 308 tonnes per year. In 2018, it was announced that an **e-trike** will be incorporated in the bike sharing network to provide a viable alternative to the existing system.

- **Portland's (USA)** new light rail project has provided **new bike parking spaces** and approximately 10 miles of new or replaced sidewalks and eight miles of new or replaced bicycle facility improvements have been constructed. A bike sharing scheme due in the spring of 2018 with 50 bicycles at four stations were launched.
- **Vienna's (Austria)** Smile initiative which ended in May 2015, resulted in the development and testing of a prototype **integrated mobility platform (including taxis and cycling)** allowing for real time information, booking, ticketing and payment to a single platform. An online survey showed that 48% of users now use public transport more often and 20% now combine a public transport trip with bike sharing more frequently.
- By the end of the 2016, the **West Midlands (UK)** saw an increase in cycling by more than two million trips per year, **and walking trips** by more than 10 million alongside enhancements to the public transport network, helping to reduce CO<sub>2</sub> by 10,000 tonnes. By March 2015, a scheme which provides free travel passes and cycling support for jobseekers has supported more than 14,000 job seekers back to work more than doubling the target set. As of 2018, it was reported that the current cycling network includes over 342 miles of canal towpaths, greenways, national cycle networks as well as **on-road segregation** which will help to increase cycling levels to 5% by 2023.
- **Budapest (Hungary)** launched a **public bicycle sharing scheme** in 2015 and by May that year 1,100 bicycles were available at 76 docking stations throughout the city.
- In **Montreal (Canada)** the public transport undertaking alongside the city launched in 2015 an **electric car sharing programme**. To encourage the expansion of electric car-sharing the number of vehicles was scheduled to double to 500 by the end of 2018.
- 2017 saw the **Flemish government (Belgium)** invested over €1bn in **tram and bus as well as cycling upgrades** which will see the creation of 80 new cycling highways.
- The year 2015 saw **Singapore's third intra-town dedicated cycling path network** completed. This is just one part of their wider 2030 plan to complement their public transport network which will see the construction of 200km of **sheltered walkways** by 2018, and a **cycling network** over 700km in length by 2030. In addition, by end 2017 a **new bicycle sharing service** is reported to be launched with 1,000 bikes and 100 docking stations alongside a new nationwide **electric car sharing service**.
- **Osnabruck (Germany)** saw the launch of **regional car sharing** programmes in 2016 with over 2,200 members.
- On January 1 2017, a good 1.7 million customers were registered with **German CarSharing** providers. This is 36% more than in the previous year. In 2018, more than 2 million will use car sharing in 677 cities and municipalities in Germany – 80% more than the previous year. The electric share in the CarSharing fleets is 10%, about 100 times higher than in the national car fleet.
- In **Casablanca (Morocco)** alongside the tramline extension, sustainability considerations are being integrated into the **10 hectares of pedestrian areas and rehabilitated walkways**.



- **Leipzig (Germany)** has a bold target to achieve a modal share of public transport, walking and cycling of 70% by 2020. So far in 2018, **2,500km of walkways have been established, 461km of bike lanes, 6,000 bike parking stands** as well as **enhancing their bus and tram systems** in order to achieve the target.
- The **West Midlands (UK)** will see the launch in 2018 of the largest **bike-share scheme** outside of London with 2,000 bike installed in cities across the region.
- After the Summit, **Berlin's public transport company (Germany)** launched an energy efficiency competition which has enabled a start up to launch a shared **electric scooter** scheme which is helping to complement the public transport network and provide the last mile solution between public transport and home.
- In **Lisbon (Portugal)**, the implementation and update in 2020 of the **low emissions zone** will help a 60-tonne decrease in CO<sub>2</sub> per year, by encouraging the uptake of walking, cycling and clean public transport solutions, including electric taxis.
- In **Osnabrück, for the first time in Germany**, a public transport company offers both stationary and flexible **car sharing, which is easily accessible by public transport and walking.**
- A new governance law in the **Santa Cruz area (Bolivia)** in 2020 will help decision making at the local level to enable El Torno to promote a **pedestrian-friendly city** that allows sustainable mobility, preventing pollution and taking care of the quality of life of its inhabitants.
- In **Montreal (Canada)**, it was announced in January 2019 that the **city's bike sharing scheme** will be extended to 19 districts, up from the 11 currently in place. It will see the addition of 1,000 new bikes, all of which will be in service next spring.
- In response to the Covid pandemic, in **Milan (Italy)**, **35km of new cycle paths with footpaths were widened** to allow the city to safely re-open in April 2020.

## IMPROVEMENTS & INVESTMENTS IN INFRASTRUCTURE - RENEWABLES, LIGHTING, GREEN PROCUREMENT & OFFICE, STATION AND BUILDING ENHANCEMENTS

- April 2015 saw the launch of a **solar photo-voltaic plant in Phoenix (USA)** at the Light Rail Facility Operations and Maintenance Centre which is comprised of 2,800 solar voltaic panels spanning 1.15 acres, mounted at ground-level and on parking lot shade canopies. It is capable of generating 1.3 million Kilowatt-hours (kWh), saving around 900 tonnes of GHG annually, enhancing the **efficiency of buildings and operations.** By July 2019, around 3,420 tonnes of CO<sub>2</sub> had been saved thanks to the plant which equates to around \$300,000 saved.
- In **Japan, the rail operator** has launched the operation of its first large-scale **solar power** generation facility on the grounds of the Keiyo Rolling Stock Centre with an output capacity of 1,050kW. The electricity generated is used at the Centre and will also help to operate trains, reducing CO<sub>2</sub> emissions by about 500 tonnes annually and they also started operation of another solar power generation facility on the Joban Line during 2015, enhancing the efficiency of the facility. About 1.6 million kWh of the power generated by solar panels in FY2017 for the operator's own use.



- In January 2017, a new **green deal** was signed to ensure the **sustainability of the construction and procurement of train stations, buildings and railways in Holland**. As of 2019, more than 200 Green Deals had been agreed in Holland covering energy, bio-based economy, mobility, water, food, biodiversity, resources, construction and climate.
- **Wind turbines** have been installed in places such as **Manchester (UK)** capable of generating 25,000 kWh. Furthermore, as reported in 2017, a total of 52,000 traditional signal bulbs have been replaced with **low energy LEDs** which is helping save emissions but also costs with the money saved so that the city can help invest into other important public transport projects.
- **Brussels (Belgium), wind turbines** are saving around 450 tonnes of CO<sub>2</sub> per year thanks to their green procurement efforts all helping to reduce emissions from office buildings. In addition, in 2018, the opening of the **new tram depot with rainwater collection, 600 solar panels and LED lighting ensure** that it has one of the highest **BREEAM ratings** of its kind.
- **Photovoltaics installed at a green station in Bielefeld (Holland)** is improving building efficiency and saving 68 tonnes of CO<sub>2</sub> per year.
- In **Karlsruhe (Germany)** a **new combined heat and power** plant began operation in October 2015 at the operator's western depot and is able to provide electrical power of up to 600 kW, with the utilisation of up to 550 kW of heat. In this way, around 75% and 55% respectively of the organisation's power and heat needs will be realised from this renewable source enhancing the efficiency of operations, stations and buildings.
- **Magden (Germany), the use of self-generated low carbon energy** is also helping to reduce emissions from bus and tram stations below the national grid average.
- In 2015, **lighting upgrades** at all five downtown transit tunnel stations in **Seattle (USA)** is reducing electricity use by 71%. The organisation has also received a **LEED Gold rating** for their central operations base. The plan is to transition to only **LEDs** by 2023 and a contract was signed in 2017 to transform **solar lighting** at shelters and stops.
- In **Rotterdam (Holland)** their station and offices has improved efficiency through energy efficient lighting thanks to **green procurement initiatives**. A solar them system has been installed on the roof of a depot saving 0.8 tonnes of CO<sub>2</sub> per year.
- **Washington (USA)** has reported 70% energy efficiency improvements through their lighting upgrades which commenced at the start of 2015, which is part of their wider plans to replace 13,500 light fixtures with high-efficiency **LED lights** through all types of stations and buildings. The project is expected to save more than 15 million kWh in energy per year, reducing carbon emissions by over 10,000 tonnes. Furthermore, **energy monitoring systems** is helping to further improve the efficiency of station through remote monitoring and management.
- In April 2015, **New York (USA)** announced the completion of its largest-ever energy-efficiency project, which will save \$2.5 million in annual energy costs at Grand Central Terminal. The upgrades will reduce emissions by more than 11,200 tonnes a year. In addition, 2016 saw **LED lights** installed at the Bronx-Whitestone Bridge improving efficiency by over 70% in recognition of Earth Day. In June 2016 the Fulton Centre was the first subway hub to receive a **LEED rating** for sustainability and design achieving 25% energy savings. Half of the energy used comes from renewable sources.
- The **world's leading manufacturer of braking systems for rail and commercial vehicles** helped to reduce its corporate carbon emissions by installing throughout 2015 and 2017 **renewable**



**energy infrastructure, LED lighting, employee engagement, renewable energy, green procurement and energy efficient buildings** all of which helped to reduce consumption by 9% compared to the previous year.

- In **Paris (France)**, the operator is **installing renewables and LED lighting** in all the 366 metro stations and aims to replace 250,000 light points which will help to save 8,000 tons of CO<sub>2</sub>. All of which will ensure a better customer experience through the **enhancement and efficiency of stations and buildings**. Efforts by the **national train operator**, such as the use of **LED technology and the use of solar energy**, will ensure a reduction in emission by 6% from their operations at the end of 2017.
- In **Moscow (Russia)** **energy efficient escalators** were installed in the metro system in 2016 as part of the **system upgrade which will see the launch of new stations**.
- **London (UK)**, continued in 2016 to **install renewables and upgrade their buildings and road street lighting to the latest green standards through green procurement** which aims to cut CO<sub>2</sub> emissions by 9,700 tonnes. In January 2018, it was announced that 1.1MW of **new solar capacity** will be installed on a variety of buildings saving 480 tonnes of annual CO<sub>2</sub> emissions.
- The **Railsponsible** initiative was launched in March 2015. This new global initiative is focused on improving sustainability and transparency throughout the entire **rail procurement supply chain** through sharing best practices and processes, driving a common understanding across the industry, and to use and share common tools helping to drive down supply chain emissions. As of year-end 2018, about 860 railway industry suppliers had participated in the initiative, up 200 at the beginning of the year.
- **LED lighting installed in Innsbruck's trams (Austria)** is helping to reduce operator costs by around €6,000 per year and save 27 tonnes of CO<sub>2</sub> which is the same as 170,000 kilometres of car travel.
- **Sao Paulo's (Brazil) three new stations** that were opened at the end of 2017 have been designed to improve customer experience by using **natural light** which have helped to reduce energy consumption.
- As reported in 2018, **Brisbane (Australia)**, the Council has **retrofitted 25,000 streetlights with LEDs, installed 502kW of solar power systems and launching community composting hubs to reduce organic waste going to landfill** while at the same time saving multiple tonnes of emissions.
- In **Rotterdam (Holland)** **the new tram depot integrates the latest sustainability standards** and reuses 100% of the **rainwater for washing**.
- **Singapore** announced in May 2018 that it is on track to complete a **new station** by December 2019. In total, 17 metro **stations will be upgraded** in Singapore which will help to create 15% more space to cater for more public transport users.
- After three years of work, **all services integrated the new Givisiez site (Freiburg, Germany) were completed in spring 2019**. Maintenance, operation, infrastructure, administration and technical services are thus brought together in one place - modern, functional and sustainable space - with the aim of ensuring harmonious cohesion between employees, facilitating their work and efficient mobility in the areas.
- **Energy efficiency improvements, green procurement, LED lighting and renewable efforts in Hong Kong (China)** are expected to save 30,000 tonnes of CO<sub>2</sub> in the coming years as more



of their properties and stations receive the highest level of environmental standards. For instance, three properties and stations received a provisional assessment of **BREAM Plus Gold** in 2015. In addition, work continued on replacing all lighting to more **energy efficient LED-lights** in 2017. The replacement project was recently completed at all 32 stations.

- **Gothenburg's public transport operator (Sweden)** goal is to reduce energy consumption by 25% by 2025 and during 2015 seven of their terminal buildings reached high levels of **environmental certification as recognized by the Sweden Green Building Council**. All buildings were to be certified in 2016.
- The **Stinson bus garage in Quebec (Canada)** received the first of its type **LEED Gold certification**. The heat recovery system generates annual energy savings of nearly \$1 million which also represents a 60% reduction in emissions. In addition, the upgrade of the Youville Metro workshop has also been completed. Further efforts are planned for LEED Gold certification another bus garage with works set to take place from the summer 2017 to spring 2021.
- In 2018, the **upgrading of a station was announced in Singapore** with works expected to be completed in 2022. The works will include improved barrier free access to the station.
- Three **new stations were added to metro line five to the São Paulo metro (Brazil)** in 2017, serving 60,000 per day helping to provide access to major hospital complexes. The stations were designed using natural light helping to reduce energy consumption.
- An area of 1420 square meters of **photovoltaic solar panels** has been operational since March 2016 in **Freiburg (Switzerland)** which has the capacity of 227 kilowatts.
- The introduction of **Gothenburg's (Sweden) new electric ferry** last year is helping to reduce emissions and air pollutants by one third.
- It was announced in 2018 that **London's (UK) public transport network** will install **energy efficiency measures, including solar power, across a number of its buildings** saving around 480 tonnes of annual carbon emissions per year.
- Since January 2016, the railway company in **Bern (Switzerland)** has been operating on 100% **renewable energy** making it one of the few operators to do so in the country.
- Information panels charged by **solar energy** will provide **Flemish (Belgium)** with up to date, reliable travel data set from 2019.
- **LED lighting will be integrated into a new line of metro** in the city of **Lisbon (Portugal)** which reaffirms their commitment to sustainable mobility.

## **AWARENESS & ACTION – STAKEHOLDER ENGAGEMENT & CLIMATE STRATEGIES**

**Many of the deliverables quoted above are a result of concerted effort to deliver on climate strategies, which include external and internal consultation. Additional efforts of note include:**

- **Manchester's (UK)** goal is to become **zero carbon by 2033** and targets aimed to reduce specific emission per passenger km have been established in other organisations, for example in **Hong Kong the target set is 21% by 2020, in Montreal (Canada) the goal is a 20% fall by 2020** and in **London (UK), the goal is to reduce CO<sub>2</sub> per passenger km from their network and fleet by 40% by 2025**.



- In **Belgrade (Serbia)**, the city in 2015 started examining a range of scenarios to enhance the efficiency of the public transport and develop mobile ticketing. The Serbian capital recently adopted the '**Identity\_Mobility\_Environment**' (**IME**) **project**, which aims to strengthen the identity of the city, promote and apply the concept of sustainable mobility and enhance environmental awareness.
- Through the **Vivapolis Charter** signed in 2015, the **international private public transport operator in France** has shared their expertise to the planning of the **high service bus service in Bogota (Colombia)** which will help to reduce emissions by 280,000 tonnes of CO<sub>2</sub>.
- Public transport organisations are increasingly being highlighted as driving innovation towards greater environmental sustainability as recognised when the **Utah (USA)** transport authority received a **Green Business Award in 2015**. In addition, 2017 saw the launch of a number of **people engagement initiatives** in Utah that will help to improve the local public transport services.
- **Energy challenges launched at depots and stations in Brussels (Belgium) since** the Summit has helped to save €50,000 in energy costs.
- In the **Greater Toronto and Hamilton Area (Canada)**, the company is already saving an estimated \$1.5 million annually in energy costs through **staff engagement** programmes started in 2015.
- **External engagement programmes** have been implemented in a variety of forms over the year such as engaging with children and parents on the benefits of public transport and sustainable travel choices, as they have done in cities such as **Manchester (UK) and Munich (Germany)**.
- Since 2015 in **Laval (Canada)** the city re-launched an initiative which **encourages citizens** to use public transport on smog days during the summer when levels go below acceptable limits. By providing incentives to use public transport, it could prompt 1,500 motorists to get off the roads in a single day.
- In **Bangalore (India)**, the operator has again over the past couple of years engaged the community of the benefits of public transport during **World Environment Day**. Encouraging people to use public transport saw emissions cut by 10%. A further initiative was launched in 2018, where a 'less traffic day' is held on every second Sunday of every month to encourage people to use public transport in a bid to reduce congestion in the city.
- Commitments have been made by **public transport associations in Brazil, Italy and the USA and by organisations in Lebanon to raise awareness of the importance of climate action with public transport**.
- Since 2015, **Singapore's smart travel programme** aims to reduce/shift the morning peak hour demand and encourage a shift to sustainable transport alternatives through encouraging commuters to flexi-travel: re-time their trips to off-peak periods, re-mode to more sustainable modes (public transport, cycling and walking) and to reduce travel demand altogether.
- The **Polish rail operator** controlling over 70% of the regional market launched a targeted promotional campaign in February 2015 aimed at **encouraging motorists to use rail** travel instead of private cars. During a specified week, any person who applied with a valid car registration was able to buy a five-day ticket on any route for only PLN 1 (EUR 0.24). It showed



that of those participated, 62% were using trains for the first time, encouraging private motorists to switch to rail public transport options.

- In 2018, **Barcelona (Spain)** published a range of **sustainability policies and master plans** to help drive eco-efficiency in operations, drive green procurement, and foster a culture of sustainability and corporate responsibility to help them become the cleanest public transport network in Europe.
- The **UK rail sector** has a goal to **reduce per passenger km carbon** emissions by around 40% with energy saving potentially worth millions as reported in 2017.
- In the **Netherlands**, a network organizations active in the fields of mobility and logistics has aimed to realize at least 20% CO<sub>2</sub> reduction by this year through encouraging **more sustainable travel behaviour through a range of personalised incentive programmes**.
- In the city of **Vologda (Russia)**, the trolleybus manufacturer has helped to **raise awareness of sustainable transport solutions by further providing low emissions mobility** in 2019.
- The **private operator of public transport networks in Brazil** latest sustainability report highlights their contribution to delivering on the **SDGs**. Through strong internal and external stakeholder engagement, their materiality assessment identifies addressing climate change adaptation and mitigation as a core priority which is now seeing initiatives implemented across the entire value chain, including awareness workshops with key suppliers;
- **Stuttgart (Germany)** aims to **increase public transport passengers in the region by 20% by 2025** and over the years has seen a 97% increase in the number of passengers today.
- In **New York (USA)**, the public transport authority offered it's first-ever "**Green Bonds**" to the public in a two-day order period on 17 February 2015. The bonds' proceeds of \$500 million will pay for continuing work on infrastructure renewal and upgrade projects. In addition, to mark the start of the **Climate Week** in September 2015, a million metro cards were issued with a green front face and a green message on the back reminding customers that they are helping to address climate change by taking public transport and asking how else they can incorporate greener efforts into their lives. The authority had the sixth largest green bond issued globally during 2017 and more have been issued in 2019.
- In **Seattle (USA)** community members and stakeholders have shared their views since 2015 on how to develop the public transport network in order to get around better. This effort of **co-creation** will ensure that the future system offers new innovative travel options which are also clean, safe and customer friendly. In addition, in September 2016 the authority worked with more than 70 local businesses to build teleworking programmes removing an estimated 12,000 cars from regional commutes each weekday, helping to reduce employers' carbon footprint.
- The city of **Belgrade (Serbia)** announced tendering of its **sustainable mobility plan** in January 2019 with a 12 month deadline for implementation. The aim is to transform the city towards walking, cycling, public transport and transport with environmentally friendly vehicles.
- In January 2019, **Berlin (Germany)** adopted its **new transport plan** with the aim to eliminate fossil fuels from the transport energy mix by 2030. Key measures will see the greater integration of sustainable transport modes with public transport and technical enhancements to vehicles to allow for greater flexibility of service. A new line will also open



up **new transport networks** for 150,000 passengers per day alongside 45 **new electric buses**. The aim is to purchase 3,000 electric buses by 2030.

- In 2018, **Dakar (Senegal) committed to be carbon neutral by 2050**.
- In 2018, the regional rail operator in **Barcelona (Spain)** reconfirmed their **commitment to sustainable mobility** to help advance liveable cities.
- Project **Ireland 2040** is the government's strategy which was recently launched and aims to **electrify the bus fleet** which will help to overhaul the current bus systems and encourage compact urban growth around enhanced sustainable transport infrastructure.



## ORGANISATIONS THAT MADE A PLEDGE TO ACTION UNDER THE UITP DECLARATION IN 2014

**ARGENTINA** (ENTE DE LA MOVILIDAD DE ROSARIO); **AUSTRALIA** (BRISBANE TRANSPORT); **AUSTRIA** (GRAZ KÖFLACHER BAHN UND BUSBETRIEB (GKB), INNSBRUCKER VERKEHRSBETRIEBE UND STUBAITALBAHN GMBH (IVB), LINZ LINIEN GMBH FÜR ÖFFENTLICHEN PERSONENNAHVERKEH, WIENER LINIEN GMBH & CO KG); **BELGIUM** (SOCIETE DES TRANSPORTS INTERCOMMUNAUX DE BRUXELLES (STIB/MIVB), ASSOCIATION OF THE EUROPEAN RAIL INDUSTRY (UNIFE), VAN HOOL NV, VLAAMSE VERVOERMAATSCHAPPIJ VVM DE LIJN); **BOLIVIA** (MINISTERIO DE OBRAS PUBLICAS SERVICIOS Y VIVENDA); **BRAZIL** (ASSOCIACAO NACIONAL DOS TRANSPORTADORES DE PASSAGEIROS SOBRE TRILHOS (ANTPRILHOS), COMPANHIA DO METROPOLITANO DE SAO PAULO – METRO, CONCESSAO METROVIARIA DO RIO DE JANEIRO SA (METRO RIO), CONSORCIO METROPOLITANO DE TRANSPORTES - AUTOPASS (CMT - AUTOPASS), ELEKTRO, EMPRESA MUNICIPAL DE DESENVOLVIMENTO DE CAMPINAS SA (EMDEC), FEDERACAO DAS EMPRESAS DE TRANSPORTES DE PASSAGEIROS DO ESTADO DO RIO DE JANEIRO (FETRANSPOR), GRUPO CCR S/A, INSTITUTE FOR TRANSPORTATION & DEVELOPMENT POLICY (ITDP)/BRT TRANSOESTE, MINISTERIO DAS CIDADES - SECRETARIA NACIONAL DE TRANSPORTE E DA MOBILIDADE URBANA, SISTEMA DE TREN ELECTRICO URBANO (SITEUR); **BULGARIA** (STOLICHEN ELEKTROTRANSPORT PLS); **CANADA** (AGENCE METROPOLITAINE DE TRANSPORT (AMT), SOCIETE DE TRANSPORT DE LAVAL (STL), SOCIÉTÉ DE TRANSPORT DE MONTRÉAL (STM), TORONTO TRANSIT COMMISSION (TTC), METROLINX); **CHINA** (MASS TRANSIT RAILWAY CORPORATION LIMITED (MTRC); **COLOMBIA** (EMPRESA DE TRANSPORTE DEL TERCER MILENIO

TRANSMILENIO S.A., SOCIEDAD INTERNACIONAL DE TRANSPORTE MASIVO (CIUDAD MOVIL SA); **CZECH REPUBLIC** (DOPRAVNI PODNIK HLM PRAHA AS (DP PRAHA)); **DENMARK** (CITY OF COPENHAGEN; MOVIA PUBLIC TRANSPORT - TRAFIKSELSKABET MOVIA); **FINLAND** (HELSINKI REGIONAL TRANSPORT (HSL)); **FRANCE**(RÉGIE AUTONOME DES TRANSPORTS PARISIENS (RATP GROUP), SOCIETE NATIONALE DES CHEMINS DE FER FRANCAIS (SNCF), SYSTRA, TRANSDEV GROUP); **GERMANY** (BERLINER VERKEHRSBETRIEBE (BVG), BOCHUM-GELSENKIRCHENER STRASSENBAHNEN AG (BOGESTRA), BOMBARDIER TRANSPORTATION, BREMER STRABENBAHN AG (BSAG), BUNDESVERBAND CARSHARING E.V (BCS), RESDNER VERKEHRSBETRIEBE AG (DVB), HAFTPFLICHTGEMEINSCHAFT DEUTSCHER NAHVERKEHRS- UND VERSORGUNGSUNTERNEHMEN (HDN), HAMBURG PORT AUTHORITY, HAMBURGER HOCHBAHN AG (HHA), HEAG KONZERN-MOBILIO GMBH, HÖFT & WESSEL - ALMEX AG, KASSELER VERKEHRS- UND VERSORGUNGS-GMBH (KVVKS), KNORR-BREMSE, KÖLNER VERKEHRS-BETRIEBE AG (KVB), LEIPZIGER VERKEHRSBETRIEBE GMBH (LVB), MAGDEBURGER VERKEHRSBETRIEBE GmbH (MVB) MOBIEL, MÜNCHNER VERKEHRSGESELLSCHAFT (MVG), STADTWERKE MÜNSTER GMBH (SWMS), STADTWERKE OSNABRÜCK AG VERKEHRSBETRIEBE STUTTGARTER STRASSENBAHNEN AG (SSB), ÜSTRA HANNOVERSCHE VERKEHRSBETRIEBE AG, VERKEHRS- UND TARIFVERBUND STUTTGART GmbH (VVS), VERKEHRSVERBUND OBERELBE GmbH (VVO)); **HOLLAND** (CONNEKT, PROVINCIE GELDERLAND, ROTTERDAMSE ELEKTRISCHE TRAM (RET)); **HUNGARY** (BUDAPESTI



KÖZLEKEDÉSI KÖZPONT (BKK)); **INDIA** (BANGALORE METROPOLITAN TRANSPORT CORPORATION (BMTC)); **IRELAND** (RAILWAY PROCUREMENT AGENCY (RPA)); **ITALY** (AZIENDA TRASPORTI BERGAMO SERVIZI S.P.A. (ATB SERVIZI), CONSORZIO TRASPORTI E MOBILITÀ CAGLIARI S.P.A (CTM), ASSOCIAZIONE TRASPORTI (ASSTRA)); **JAPAN** (EAST JAPAN RAILWAY COMPANY (JR EAST)); **LEBANON** (TEAM INTERNATIONAL); **LIECHTENSTEIN** (VERKEHRSBETRIEB LIECHTENSTEINMOBIL (LIEMOBIL)); **LUXEMBOURG** (SALES-LENTZ AUTOCAR SA. (SLA)); **MEXICO** (DINA CAMIONES, SISTEMA DE TREN ELECTRICO URBANO (SITEUR)); **MOROCCO** (CASABLANCA TRANSPORT SA (CASA TRANSPORT)); **NORWAY** (RUTER AS); **POLAND** (PRZEDSIĘBIORSTWO KOMUNIKACJI TROLEJBUSOWEJ SP.ZO.O (PKT) **PORTUGAL** (CARRIS – LISBON, METROPOLITANO DE LISBOA); **ROMANIA** (SOCIETATEA DE TRANSPORT PUBLIC ALBA IULIA (STP SA)); **RUSSIA** (MOSCOW METRO, SAINT PETERSBURG METRO, TRANS-ALFA ELECTRO); **SENEGAL** (CONSEIL EXECUTIF DES TRANSPORTS URBAINS DE DAKAR (CETUD)); **SERBIA**(GSP BEOGRAD-CITY PUBLIC TRANSPORT COMPANY); **SINGAPORE** (LAND TRANSPORT AUTHORITY (LTA)); **SPAIN** (CONSORCIO DE TRANSPORTE METROPOLITANO AREA DE GRANADA (CTAG), FERROCARRILS DE LA GENERALITAT DE CATALUNYA (FGC), TRANSPORTS METROPOLITANS DE BARCELONA (TMB)); **SWEDEN** (CITY OF GOTHENBURG, X2 KOLLEKTIVTRAFIK AB, VÄSTTRAFIK AB); **SWITZERLAND** (BERNMOBIL - STÄDTISCHE VERKEHRSBETRIEBE BERN (SVB), REGIONALVERKEHR BERN-SOLOTHURN (RBS), TRANSPORTS PUBLICS FRIBOURGEOIS (TPF)); **UNITED KINGDOM** (ABERDEEN CITY COUNCIL - ABERDEEN HYDROGEN BUS PROJECT, ARRIVA,

CENTRO, GO-AHEAD GROUP, LOTHIAN BUSES, NEXUS, RAIL SAFETY AND STANDARDS BOARD (RSSB), STAGECOACH GROUP, TRANSPORT FOR GREATER MANCHESTER (TFGM), TRANSPORT FOR LONDON (TFL), WEST OF ENGLAND LOCAL ENTERPRISE PARTNERSHIP; **UNITED STATES OF AMERICA** (AMERICAN PUBLIC TRANSPORTATION ASSOCIATION (APTA), KING COUNTY METRO, METROPOLITAN TRANSPORTATION AUTHORITY (MTA), SAP AMERICA INC, TRIMET, UTAH TRANSIT AUTHORITY, VALLEY METRO, WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA)



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This Report was prepared by the UITP Sustainable Development Committee helping to make public transport more sustainable thereby the world.



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Rue Sainte-Marie 6, B-1080 Brussels | Belgium | Tel +32 (0)2 673 61 00 | Fax +32 (0)2 660 10 72 | [info@uitp.org](mailto:info@uitp.org) | [www.uitp.org](http://www.uitp.org)

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