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## **Abellio TH Carbon Reduction Plan.**

Abellio Transport Holdings supports measures to address the climate emergency as outlined by the UN Intergovernmental Panel on Climate Change (IPCC), so we have agreed a carbon reduction plan with the aim of adapting it to meet IPCC targets and a final goal of carbon neutrality.

### **Abellio's current Carbon Reduction Plan.**

Our overall vision is that by 2038 we will have a net zero-carbon business. The Company's own operations will be safe, secure, clean and efficient, and we will play a positive role enabling the transport industry to achieve net-zero emissions

To deliver this vision we are focusing on the eight priority areas:

1. Operational buildings including stations and depots.
2. Headquarters and ancillary services buildings.
3. Operational and staff transport.
4. Working practices and employee behaviours.
5. Traction energy efficiency.
6. Sustainable transport through operational efficiency and accessibility.
7. Working with stakeholders.
8. Influencing new developments and innovation.

We have set up the Abellio TH Carbon Reduction Good Practice Forum. This group includes all our operating companies and ancillary services working together to promote carbon reduction throughout the Company.

We will produce and regularly review the plan to tackle these priorities, and we will publicly report our own emissions every year.

### **1/. Operational buildings including stations and depots.**

The plan for these locations includes energy efficient lighting, heating and ventilation whilst providing safe and secure locations for passengers and employees. We will also ensure that we manage waste and water responsibly and efficiently to limit their carbon impact.

This will include details of the LED schemes, management control of heating and ventilation systems, energy efficiency measures such as insulation and building to BREAM standards. Any accreditations for buildings will be included here.

Schemes to identify water recycling, use and leak control, the overall 'greening' of buildings and landscape, biodiversity, station adoption and the reduction and effective management of waste.

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### **Abellio Bus:**

ISO 14001 accreditation applies to each site.

**Armstrong Way:** The depot has an Energy Performance Rating (EPC) of A16 and has achieved a BREEAM rating of “Very good”; There is a Photo Voltaic (PV) system installed on the roof, the depot is fitted with LED lighting which is predominantly automatic – the automatic lighting is operated by a wall mounted switch, when ‘on’ the lights will remain on when movement is detected and turn off after a period of time, when ‘off’ the lights remain off regardless of movement within the area. Fridges at the depot are ‘frost-free’ meaning ice does not build up making the systems more efficient and removing the need to de-frost. There is also a heating building management system allowing appropriate temperature regulation and preventing staff from altering the settings. The bus wash has a recycling and filtration plant installed; the main building has water saving devices installed where appropriate. Armstrong Way is a newly built depot (July 2019) and so meets current building standards and legislation. The site has multiple waste streams for hazardous and non-hazardous waste which ensures appropriate disposal and prevents removal to landfill.

**Battersea:** This depot is mostly fitted with automatic LED lighting and rollout will continue as part of routine maintenance. Fridges are ‘frost-free’. The site has a rainwater harvesting system installed that uses recycled rainwater for the Bus Washes and toilets, water recycling is employed for the bus washes and water saving devices are in use within the building where appropriate. The site has multiple waste streams for hazardous and non-hazardous waste. The depot underwent extensive refurbishment in 2017 and so meets current building standards and legislation.

**Beddington:** Fridges are ‘frost-free’. Water recycling is employed by the bus wash. The site has multiple waste streams for hazardous and non-hazardous waste.

**Hayes:** This depot is closing in spring 2022. The Engineering and Facilities/Safety departments have already relocated to Waterway Park. Fridges are ‘frost-free’. Water recycling is employed for the bus wash. The site has multiple waste streams for hazardous and non-hazardous waste.

**Twickenham:** This depot was built in the early 1900s and includes heritage features that restrict certain alterations. Fridges are ‘frost-free’. Water recycling for the bus wash is very limited, this is planned for improvement when the machine is replaced, in 2022. The site has multiple waste streams for hazardous and non-hazardous waste.

**Walworth:** This depot is fitted with automatic LED lighting. There is also a HVAC (heating ventilation and air conditioning) building management system. Fridges are ‘frost-free’. Water recycling is employed for the bus washes. The site has multiple waste streams for hazardous and non-hazardous waste.

**Waterway Park:** Newly opened (September 2021). The building is a modern construction and has been newly refurbished to house Engineering and Facilities/ Safety departments. Fridges are ‘frost-free’ and water fountains are touch free with an auto cut off. This depot is fitted with automatic LED lighting. There is also an HVAC building management system. The site has multiple waste streams for hazardous and non-hazardous waste.

### **EMR:**

Ongoing deliver of Carbon Smart strategic aim and Energy Efficiency Programme in relation operational building non-traction carbon and energy. In 2020/21 EMR's Fleet organisation, covering the five sites

(Neville Hill Depot, Eastcroft Depot, Etches Park Depot, Cricklewood Sidings & Kettering Depot Sidings) and Fleet/Support Head Office functions were successfully recertified to the ISO 14001 (environmental management) standard and successfully certified for the first time to the ISO 50001 (energy management) standard.

Non traction energy, again impacted by national Covid-19 restrictions and operational changes to the rail network and business – 2020/21 out turned at **26,937,714 kWh**, against a target of **29,195,129 kWh**.

Underpinned our energy management system is the significant investment in energy efficiency and improved measurement and monitoring, through the fitment of automated meter readers across the business.

**Planned for future:**

- Installation of Wireless Energy Management Systems at 5 more sites
- Investigation of opportunities for power purchase agreements for renewable energy
- Conduct energy improvement surveys of all stations with annual consumption over 300,000 kWh – review opportunities for building insulation and energy efficiency.
- Improvement of domestic energy monitoring across all utilities (electricity, water, gas) through installation of Automatic Meter Readers, Sub-meters and regular data validation.
- Removal of heating oil tank at Colchester North Station.
- Roll out of stations biodiversity accreditation scheme.

**Abellio Shared Services Centre:**

- taken the opportunity during lockdown to move towards a paperless office, therefore reducing printing
- all lighting is LED and sensor activated
- drinking water (hot/cold) is mains fed and provided by charity Aquaid which supports water projects in Africa
- our policy is to use local suppliers in the first instance
- we promote reduction of business travel via our travel department – asking employees to consider other methods of communication.
- we encourage the use of public transport to commute by offering discretionary free rail travel, and have adopted hybrid working to reduce days commuting to city centre

**GA:**

- Programme of LED lighting installations across all stations and depots. Installation of Wireless Energy Management Systems at 39 stations.
- Installation of water fountains at 12 stations.
- Removal of gas boilers which have been replaced with HVAC systems (these are electrically powered and therefore reduce gas usage).
- Loft insulation installed as part of refurbishment of Norwich Station.

**Planned for future:**

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- Removal of heating oil tank at Colchester North Station.
- Roll out of stations biodiversity accreditation scheme.

#### **Merseyrail:**

- PAST / FUTURE: LED scheme phase 1-3 covering 48 stations – funding agreement being arranged with NWR for remaining stations
- PAST: Depot welfare at Birkenhead Central, Southport and Kirkdale – LED lighting, push taps, trial of Propelair low water toilets
- PAST: Removal of gas at Southport and Moreton stations
- PAST: Ainsdale station – built to CEEQUAL Excellence (whole project)
- ONGOING: Access for all lift installations – Meols (complete), Hillside, Birkenhead Park, St Michaels, Hunts Cross (all under construction) CEEQUAL excellence specified in project spec.
- ONGOING: New waste contract – recycling up from around 22% to 34%. Zero to landfill
- ONGOING: 40 community partnerships / station adoption across network

#### **WMT:**

- Installation of LEDs/WEMS
- Solar installations
- LED replacement entire estate- led by Thorlux
- Electric Car Charging Points being investigated at 10 stations to support sustainable travel to/from stations.
- Committed to installation of WEMS/BMS at 9 stations.
- Upgrading existing BMS to make them wireless at 2 further stations.
- Installation of Flow Restrictors on taps within WMT estate.

#### **Planned for the Future:**

- Possible scheme to remove gas heating system from Tyseley Depot and convert to hydrogen heating system

#### **Scotrail:**

- On our non-traction Committed Obligation milestone to April 2021, we achieved 15.8% reduction against our required target of a 7% reduction
- ISO14001 - accreditation
- ISO50001 – accreditation
- Over £1m invested in upgrading LED lighting - LED lighting installed at over 110 locations, with over 5000 fittings. Focus of new business cases in now on Intelligent LED lighting

- Intelligent LED lighting fitted at Dundee Station and Exhibition Centre
- Aimteq BMS at key Depots – System that remotely manages heating efficiently at Depots
- CHP upgrade at Haymarket Depot – Upgrade of CHP to improve energy efficiency
- Boiler upgrade at Corkerhill Depot – Replacement of inefficient boiler using CP5 underspend
- TEAM – Utilising TEAM Energy to manage billing, including setting energy baselines for key stations and reporting alarms when energy performance exceeds set benchmarks
- Study commissioned to identify approach to decarbonise stations through innovations and retro fitted technology - We engaged Mott MacDonald to undertake an assessment to explore opportunities to drive decarbonisation and energy innovation in the station estate. The report focussed on opportunities to achieve ‘net zero’ emissions at three typical stations, alongside technology that could be trialled through the Sustainability Innovation Fund. The report and aspirations were shared with our colleagues in Transport Scotland and Network Rail. Further to the study, we intend to deliver Scotland’s first net zero carbon station 2022offsetting
- Collaboration with Network Rail to develop a Scotland’s Railway Sustainability Strategy with key targets and deliverables. Key focus on carbon reduction via joint working groups on Traction, Non Traction, Projects, Supply Chain and Air Quality. Network Rail engagement and collaboration also driving focus on carbon efficiency in the upgrading and replacement of assets and zero carbon thinking for new stations.
- Sustainability Innovation Fund – Annual £100k fund to invest in innovation to improve such as energy efficiency

**Planned for future:**

- Development of Science Based Targets – development of carbon reduction targets across Scope 1, 2 and 3 emissions. Collaboration with Network Rail to establish Scotland’s Railway Science Based Targets
- First carbon neutral/zero carbon station – 2022 delivery at Falkirk High – including Solar PV Car Port, Intelligent LED Lighting and Controls, Insulation upgrade to the station and carbon offsetting
- Intelligent LED lighting – Planned projects at Motherwell Station and Bathgate Depot
- LED Phase 4 - Estimated cost for 55 sites, this including smart controls
- Fort William – installing dual controls for the domestic hot water and domestic heating
- Sustainability Innovation Fund – Annual £100k fund to invest in innovation to improve such as energy efficiency

**2/. Headquarters and Ancillary Services buildings.**

As with our operational buildings we will include energy efficient lighting, heating and ventilation with responsible waste and water management and encourage appropriate occupancy to limit the use of resources.

As with the Operational Buildings and with the addition of efficient utilisation of space so that premises size and function match efficient occupancy.

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### **Abellio TH Renfield Street:**

Our plan is to reduce energy consumption where possible. For example, we have now replaced almost all lighting in common areas with LEDs and we also changed the same lighting to be sensor activated rather than always on. We underwent an EPC for the building, carried out in 2017, which showed then we were in the green Cat C. with no significant improvements that could reasonably be made as a tenant on one floor of the building.

### **Abellio Bus:**

Plans are delivering LED lighting in place, 'frost-free' fridges, automatic lighting, HVAC BMS, water recycling and water saving devices in use, multiple recycling streams, dual life of bus batteries, multi-life of bus tyres, water/gas/electricity/diesel use is recorded, maintenance ensures efficient usage, ISO 14001 accreditation

### **EMR:**

Ongoing delivery of Carbon Smart strategic aims and Energy Efficiency Programmes in relation operational building non-traction carbon and energy

Underpinned our energy management system is the significant investment in energy efficiency and improved measurement and monitoring, through the fitment of automated meter readers across the business.

Sustainable management system certification – maintain and enhance ISO 55001 (Asset Management) and ISO 50001 (Energy Management) certification as the basis of non- traction emission reduction pathway and energy efficiency programme by December 2022.

LED lighting project station estate wide - Non traction energy use - a reduction in kWh of 5.5% by 2023, 8.25% & by 2025 and 11% by 2027

### **GA:**

- As with the Operational Buildings and with the addition of efficient utilisation of space so that premises size and function match efficient occupancy.
- GA HQ carbon reporting is not currently covered within scope 2 as the lease arrangement doesn't currently provide with the information required.

### **Planned for future:**

- Work with landlords to determine/agree energy consumption estimates for buildings where GA are tenants.

### **Merseyrail:**

- Our plan has delivered LED lighting installed in Rail House (HQ)
- ONGOING: Flexible working delivering benefits in energy and waste.

**WMT:**

- Our HQ is managed separately, and the lease agreement doesn't allow for carbon to be recorded from these activities as guided by ISO14064 standard. It may be considered within Scope 3 reporting- our plan is to work with our landlord to determine energy consumption where we are the tenant.

**ScotRail:**

- We have implemented the billing of tenants for all utility use – gas, water and electricity
- Our Head office rented and managed by building owner with whom we liaise closely on efficient use of resources and the minimisation of energy, water and waste.

**3/. Operational and staff transport.**

We will implement plans to ensure that only necessary journeys are undertaken and that routes are efficient, making the most of each trip. We will move to energy efficient vehicles, removing petrol, diesel and hybrid vehicles from our fleets before deadlines set by the Government.

Business related travel should be minimised by using alternative technology for meetings and other work. Road transport using petrol/diesel and hybrid vehicles must be minimised and the use of electric vehicles and the railway system encouraged. Flying for business need should be minimised. A plan to move to efficient fleets and journey planning will be developed and implemented.

**Abellio Bus:**

Ferry vehicles are available at each site, but these must be assigned or requested – this is usually for driver travel to duty start point and return journey, or travel between depots. Most other journeys are via public transport.

Two depots now have electric vehicle charging points and more are to follow; however, up to now the introduction of electric cars has not been cost efficient (both monetarily and environmentally) as the natural life of the car had not reached an end. There are plans in place to replace diesel ferry vehicles with electric vehicles.

**GA:**

- Business travel data is collected for fuel cards, rails replacement buses, taxis and personal mileage claims. This is used to inform business travel planning.

**Planned for future:**

- Review all other potential uses that might fit into this category (scope 3), review lease arrangements for company vehicles and rail replacement services, review opportunities for EV charging points.

#### **Merseyrail:**

- ONGOING: Strong adoption of remote working and virtual meetings to reduce travel.
- ONGOING: Environment code stipulates using public transport / walking / cycling over car journeys
- PAST: Cycle to work scheme
- PAST: EV considered at last fleet review but not considered viable at this time

#### **WMT:**

We don't currently collect any data around business travel except for the Business Hire vehicles which is managed by Abellio.

Data that is planned to be collected in future:

- Claims from mileage data
- Flights?
- Taxis (drivers/conductors)
- Rail Replacement

#### **For future:**

- Review lease agreement for business use (EV vehicles)
- Review opportunities to install EV charge points.

#### **ScotRail:**

- Support for COP26 in collaboration with Network Rail, with appropriate Zero Carbon and sustainability messaging
- Carbon calculator on the ScotRail website to promote sustainable travel and behaviours - [Your Sustainable Journey | ScotRail](#)
- Sustainability Hub developed to promote sustainability activity to passengers, staff and stakeholders - [A journey to a more sustainable railway for Scotland | ScotRail](#)
- Fleet contract recently retendered with a strong focus on sustainability and electric and hybrid vehicles
- Adoption of remote working and virtual meetings to reduce travel
- 3 bicycles available at Head Office for staff usage
- All staff and families issued with Rail Smartcard
- EV charging points introduced at many stations (144 charging points)

#### **4/. Working practices and employee behaviours.**

Work will be planned to ensure that not only does it produce a safe and secure transport network but that it also uses resources efficiently. Employees will receive training, information, instruction and supervision on their responsibilities within the Carbon Reduction Plan and there will be appropriate monitoring, reporting and accounting for the success of these measures.

An approach to time tabling against demand and energy usage will be required. An employee programme for training and development will be built on current OpCo work. Reporting, measurement and KPI will be developed to allow review of the effectiveness of measures in place.

### **Abellio Bus:**

Abellio London Bus holds ISO 14001 accreditation which is an outward recognition that all staff have an evidenced environmental awareness. Staff notices and comms are routinely used to distribute information further to that received during induction. In addition, toolbox talks are carried out for engineering staff and shunter/ cleaner contractors. Depot teams monitor energy usage (water/ gas/ electricity). Ownership of monitoring is supported by annual reporting of energy usage and waste streams to TfL. There is also monthly reporting to the board of, waste, LEV maintenance, water quality sampling and all other areas of compliance.

As our fleet expands further into electrification, information and training has been provided to employees to ensure they understand the reasons for and benefits of fully electric buses.

Environmental objectives are reviewed each year by the senior leadership team, with updates presented by the Facilities/ Safety team.

### **GA:**

- Fuse Environmental Learning Plans began in April 2021 for all staff and focused on Energy, Waste and Water.
- KPI = total amount of environmental training records

### **Planned for future:**

- Individual departmental specific training sessions to focus on key environmental topics including carbon reduction plans e.g., for Train presentation, Engineering, Asset Management
- Recruitment of Environment and Sustainability Champions to help support energy reduction campaigns

### **Merseyrail:**

- ONGOING: Environment included in induction to all new staff
- ONGOING: Teaching and testing on the environment code delivered face to face and through video
- PAST: Green champions and station managers provided with IEMA intro to environmental management course
- ONGOING: Carbon Cup competition between stations – biggest percentage reduction in energy each year wins
- ONGOING: Energy reduction target and progress against this reported each period to ToD

### **WMT:**

- Environmental Awareness Course being delivered to all colleagues online.
- Already have a developed reporting system

- Energy reduction campaigns amongst employees

#### **Future**

- Any business cases are assessed for their energy consumption and carbon footprint to make more efficient before purchase.
- Exec are undertaking a Sustainable Development module to support sustainable thinking around business decisions.
- Department specific training for Sustainability
- Recruitment of Environment & Sustainability Champions.

#### **ScotRail:**

- Sustainability included in induction to all new staff
- Sustainability included in our new Learning and Development Hub, with a number of training modules covered
- Ongoing reporting of activity in our annual Sustainability Report - [Sustainability Report | ScotRail](#)
- Ongoing training and engagement with staff through environmental briefings to promote carbon reduction
- Green champions across ScotRail – previously provided with IEMA accredited environmental management course
- TEAM Software utilised to track and reduce non traction related energy. Key Depots trained on utilising reporting software.
- Energy reduction target and progress against this reported each period

#### **5/. Traction energy efficiency.**

It will be our plan to continue to introduce energy efficient vehicles into our fleets and to operate these with renewable energy sources where available.

The existing fleet programme benefits will be collated and stated along with future fleet and energy sourcing improvements. The Sustainable Rail Strategy Decarbonisation plan for Rail and Bus electrification will be supported.

#### **Abellio Bus:**

An initial roll out of fully electric buses began at Walworth with Routes C10 & P5 in spring 2020, with further 29 vehicles entering service in 2021 and 2022. All future bids are for electric vehicles.

By the end of 2022 5 of 6 depots will operate electric vehicles. Three routes will operate from Walworth (C10, P5, 63), one route from Hayes (U5), one route from Battersea (322), one route from Beddington (433) and one route from Twickenham (111).

The current diesel/hybrid fleet is Euro VI compliant. Abellio Bus hold DVSA Earned Recognition, and our workshops are IRTE Accredited. The fleet is also fitted with auto idle shutdown after 3 minutes.

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#### **GA:**

- Complete roll-out Class 720s to complete whole fleet replacement.
- Removal of old fleet types.
- Eco-driving policy implemented

#### **Planned for future:**

- Investigation the feasibility of fuel additives e.g EcoClean
- Development of data tool to help manipulate traction energy data
- Improved used of Driver Advisory System
- Collaborate with EC4T group to seek opportunities to source EC4T from renewable sources
- Investigate options for shore supply at Norwich Crown Point depot to help reduce diesel usage and improve local air quality.

#### **Merseyrail:**

- ONGOING: 100% electric fleet
- FUTURE: Introduction of 777s imminent with energy reductions expected
- FUTURE: New fleet includes onboard metering for better traction management.

#### **WMT:**

- Eco-Driving Policy introduced
- Fleet Efficiency performance monitoring and reporting

#### **Future**

- Introduction of Class 730 and Class 196
- Removal of obsolete fleet
- Efficiency measures on Class 350 (internal LED lightning)
- Fuel metering measures
- Driver Advisor Systems such as C-DAS

#### **ScotRail:**

- 38% reduction in overall carbon footprint since 13/14 – delivered despite the introduction of new stations and depots, increased train mileage, introduction of HSTs
- 39% reduction in Traction Energy, delivered against an increasing trend in vehicle KMs
- Fuel additive introduced across all diesel depots in 2021, with an expected 3% reduction in overall diesel usage
- Introduction of DAS across all fleets, with a possible 5% reduction in associated energy and diesel usage for those units following the DAS advice
- Idling Policies – including monitoring to ensure compliance to 15 minute Policy. All driver DMU diagrams include instructions to immobilise

- EC4T usage tracked on Power BI Dashboard, allowing assessment of journey and non journey costs and opportunities for energy reduction
- Introduction of the 385 fleet, replacing diesel on many routes – between Edinburgh and Glasgow Scotland’s newest 100 per cent electric commuter trains cut carbon emissions by over 10,000 tonnes a year, making a significant contribution towards Scotland’s ambitious 2035 net zero railways target
- Working with Siemens on a Connected DAS trial, utilising an upgraded GSMR
- Reporting of Traction Energy performance against agreed targets every Period
- Zero carbon decals being installed across our EMU Fleet



**Planned for future:**

- Development of Science Based Targets – development of carbon reduction targets across Scope 1, 2 and 3 emissions. Collaboration with Network Rail to establish Scotland’s Railway Science Based Targets
- Enhancement of DAS training and repair procedures at Depots, as well as guidance
- Enhanced Power BI DAS reporting against a KPI
- Expansion of Connected DAS trial
- Decarbonise Scotland’s Railway passenger services by 2035

**6/. Sustainable transport through operational efficiency and accessibility.**

Planning for our efficient and effective service provision will include the carbon impact of these services. Services will be scheduled so far as is reasonably practicable to allow the best access to people when it is most needed.

The Social value of transport provision in the UK will be supported by the Abellio plan

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### **Abellio Bus:**

Timetabling is reviewed by TfL and is part of the bidding process assessment, London bus services are scheduled in line with demand.

TfL determines the bus timetabling, Abellio puts into place scheduling in terms of ensuring we can meet the set timetable.

### **EMR:**

Decarbonising our trains and operations to create a low-emission railway - Strategic objective: Achieve ISO 55001 (Asset Management) and ISO 50001 (Energy Management) certification as the basis of traction emission reduction pathway and Energy Efficiency Programme

Traction carbon emissions target – introduce new, greener trains to realise a reduction of 54% in kg CO<sub>2</sub>e per vehicle km by 2027.

### **GA:**

- Collaboration with local council/ public transport groups e.g. integrated transport forum

### **Planned for future:**

- The Social value tool will be included as part of business case processes.

### **Merseyrail:**

- ONGOING: Majority of stations staffed through full service
- PAST / FUTURE: 15 minute timetable
- ONGOING: 20 minute timetable due to Covid
- FUTURE: Step free access at all stations with new fleet

### **WMT:**

- Social Value is currently planned to be tracked within our CSR Steering Group using the RSSB Social Value Tool as it goes live.
- Collaboration with local councils and transport schemes (WMRE) which support integrated transport and allow promotion of fluid movement from different public transports within the West Midlands.
- Customer engagement groups/ surveys etc

### **ScotRail:**

- All DMU diagrams include immobilisation to minimise idling
- Monitoring of idling at key stations, as well as increased focus on air quality at all stations and depots
- Engagement with Train Planning around traction energy targeting and performance

- EC4T analysis is identifying opportunities in traction energy performance. For example, the revised timetables have caused an impact on non-journey cost and energy usage. This is leading to a workstream to assess the effectiveness of Sleep Mode on the 385 fleet.
- Shore supply installed at Haymarket Depot, Inverness Station and Depot and planned at Perth and Cadder Depots

## **7/. Working with Stakeholders.**

Abellio TH will continue to maintain a collaborative and cooperative engagement with Industry stakeholders, retaining membership of sustainability strategy leadership and working groups.

Example are our current and future engagement with the Whole Industry Strategic Plan, the Sustainable Rail Strategy, TfL Bus forums , the Air Quality Strategy Group , the Social Value Working Group and stakeholders including , ACoRP and Passenger Focus.

### **Abellio Bus:**

- We work closely with TfL to ensure we are influencing the direction of travel with technology, i.e., vehicle telemetry; and innovation, i.e., TfL carbon-free fleet by 2034. We are also routinely asked to join working parties where appropriate.
- We are able to demonstrate collaborative engagement with TfL and third parties through our ISO 14001 certification.
- ALB works closely with contractors during the development and manufacturing of EVs and battery technology.
- Recent work with Michelin has focused on carbon reduction during tyre manufacturing process and on road use.

### **EMR:**

The primary methods established to ensure productive partnerships, collaboration and meaningful stakeholder engagement are outlined below:

- An integrated, cross-functional governance framework linking to relevant Network Rail and other critical stakeholder forums.
- Our membership and partnership with Business in the Community – being part of a network of progressive businesses who look beyond the profit motive, who want to make a difference within society and who are prepared to collaborate to bring about change.
- Routine collaboration with Abellio Group environment and sustainably professionals and more widely across the industry via the RSSB’s Sustainable Development Programme and associated forums and working groups. EMR actively contributes around Rail Industry Air Quality Strategy - being the first Train Operating Company to produce and publish an Annual Air Quality Report.

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To deliver the defined objectives, asset management strategy is identified as a critical area requiring policy and strategic alignment with Network Rail – this is a focus area in our action of sustainable management system certification, outlined above.

**GA:**

**On-going collaborations**

- Work with RSSB (Rail Environment Forum, Air Quality, Carbon Management Group)
- Network Rail
- Essex Climate Action Commission/ Essex County Council
- Community Rail Partnerships (Essex and South Suffolk)
- ROSCO's
- Other TOC's
- Norfolk Wildlife Trust, WildEast, Bee Friendly Trust
- Rail Accessibility Panel

**Merseyrail:**

- ONGOING: Serco Energy Governance Board
- ONGOING: RSSB sustainability forum
- ONGOING: Abellio group forums

**WMT:**

- RSSB (Air Quality Monitoring, Carbon Management Working Group, Rail Environment Forum, Social Value etc...)
- Network Rail
- WMRE
- RDG
- WMCA (WM Bus, Tram, Cycle etc)
- Community Rail Partnerships
- ROSCO's
- Other TOC's
- Rail Accessibility Forums

**ScotRail:**

- Development of sustainability strategy with Network Rail
- Sustainability Programme Board attended with Network Rail and Transport Scotland
- Work with RSSB (Rail Environment Forum, Air Quality etc)
- Members of the UK DAS Board
- Quarterly meeting with the ORR on sustainability
- Sponsor The Conservation Volunteers via our Biodiversity Fund

- Abellio environment forum

### **8/. Influencing new developments and innovation.**

Where new ideas and technology opportunities exist Abellio will seek them out and work to adopt practical solutions that will maintain and increase our carbon reduction efforts.

Abellio are currently engaged across Rail and Bus in a number of forums with supply chain, academia, consultancy and stakeholders where research and innovation are explored. We plan to continue our engagement with these stakeholders.

#### **Abellio Bus:**

ALB has hired a Facilities Manager (Zero Emissions and Projects) who is predominantly working on ensuring operating facilities consider the use of new technologies and energy efficient solutions as well as all the bus electrification projects.

Trial of Hydrogen Bus in 2020 with future opportunities considered going forward.

HSECM position monitors environmental aspects of business and works with waste contractors to examine new/ different disposal and recycling options.

Work with electric charging infrastructure companies to provide charging services for smart charging and to optimise battery storage. As an example, batteries from the electric vehicles will have a second life by becoming part of the charging infrastructure once their first on-bus life is no longer applicable.

#### **EMR**

Key actions and to improve air quality:

Action No.	Action	Date action introduced	Organisations involved	Progress to date
4	Eminox exhaust aftertreatment trail on Class 170	From Feb 2021	EMR, Porterbrook, Innovate UK	Success in securing funding and approvals – unit to be modified will be transferred to EMR depot in Feb 2021.

#### **GA:**

- Investigating feasibility of alternative power sources e.g. battery replacement to support bi-mode
- Renewable energy sources
- EV charging points
- Investigating feasibility of shore supplies in depots
- Investigation feasibility of fuel additive
- EC4T traction energy contracts.

**Merseyrail:**

- PAST: Trial of Propelair low water toilet.
- PAST: Installation of sun trackers for platform lighting

**WMT:**

- BREEAM/CEEQUAL
- CAF 196 battery/alternative power from diesel
- Renewable Power
- EV Fleet
- Shore Supplies
- Fuel Additive/Biofuel exploration
- EC4T Renewables (Traction Energy Agreement)

**ScotRail:**

- Development of sustainability strategy with Network Rail
- Closer collaboration with Network Rail on new projects – for example we are applying sustainability and zero carbon principles into the planning for East Kilbride and Hairmyres Stations
- Sustainability Innovation Fund – Annual £100k fund to invest in innovation to improve such as energy efficiency – fund ongoing and will continue
- Fund has led to the introduction of Artemis Digital Auxiliary Drive, coach insulation upgrades, Zip About app, fuel additives, intelligent LED lighting and fuel tank monitoring trial on train
- First carbon neutral/zero carbon station – 2022 delivery at Falkirk High – including Solar PV Car Port, Intelligent LED Lighting and Controls, Insulation upgrade to the station and carbon offsetting
- Intelligent LED lighting – Planned projects at Motherwell Station and Bathgate Depot
- LED Phase 4 - Estimated cost for 55 sites, this including smart controls



ASR - Carbon Reduction and Deca

**Appendix One: OpCo Carbon Reduction Performance Table. (Example)**

<b><u>Company and Scope</u></b>	<b><u>2019 CO2 Tonnes</u></b>	<b><u>2020 CO2 Tonnes</u></b>	<b><u>2021 CO2 Tonnes</u></b>	<b><u>2022 CO2 Tonnes</u></b>
<b>Abellio Scotrail</b>				
<b>Traction Electricity</b>	<b>64,380</b>	<b>45,885</b>		
<b>Traction Fuel</b>	<b>99,055</b>	<b>89,613</b>		
<b>Non Traction</b>	<b>11,896</b>	<b>9,831</b>		
<b>Year on year saving</b>		<b>30,002</b>		

<b>Merseyrail.</b>				
<b>Traction Electricity</b>	<b>15,722</b>	<b>13,006</b>		
<b>Traction Fuel</b>	<b>0</b>	<b>0</b>		
<b>Non Traction</b>	<b>1,595</b>	<b>1,321</b>		
<b>Year on year saving</b>		<b>2,990</b>		
<b>Greater Anglia</b>				
<b>Traction Electricity</b>	<b>88,494</b>	<b>75,047</b>		
<b>Traction Fuel</b>	<b>19,039</b>	<b>25,195</b>		
<b>Non Traction</b>	<b>7,253</b>	<b>6,514</b>		
<b>Year on Year saving</b>		<b>8,031</b>		