

## ENVIRONMENT

**Man's activities have impacted the climate system in many ways and the awareness of climate change has grown steadily over the years. Harmful emissions directly and indirectly cause the loss of biodiversity and have severe environmental, social, health and economic consequences. These pose tough challenges to Governments and companies alike as they strive to come up with strategies, policies and actions to reduce and halt the impact on our environment. There is an urgent need to innovate and target for sustainable growth so that the present and future generations can enjoy a clean and sustainable environment.**

The ComfortDelGro Group is committed to minimising the environmental impact of its operations. In fact, the very nature of a large part of our business is to try to steer communities away from the use of private cars. Indeed, studies have found that public transport, on average, consumes 3.4 times less energy per passenger kilometre than automobiles. This ratio is even more favourable during rush hour.

As we reinforce our commitment to the environment, we have set a short-term target of reducing carbon emissions by 1-3% over the next one to three years.

We endeavour to continue to improve the management of our environmental impact by reducing resource usage and minimising waste. We are firmly committed to investing in new, more environmentally friendly vehicles, so as to reduce our emissions footprint. In fact, Business Units such as ComfortDelGro Taxi, have even stopped purchasing diesel vehicles.

We effectively manage energy efficiency, air emissions, waste and water consumption. Our environmental policy has been implemented for more than a decade under the supervision of our Green Committee, involving Senior Management and all relevant Business Units/Central Functions. ComfortDelGro compiles the necessary data and reviews its performance regularly, deciding on and implementing improvement measures.

Our longer term environmental goals are:

- To improve our emissions profile per passenger journey and per passenger kilometre;
- To reduce waste and to increase the proportion of waste reused/recycled;
- To improve the environmental management standards across the Group;
- To continue to encourage and promote the use of public transport so as to ensure a modal shift away from car use;
- To continue to support initiatives on research and trial the use of alternative fuels;
- To continuously work at inculcating and strengthening the Green Culture amongst the staff.

To achieve this, we will:

- Identify, assess and actively manage all material aspects of our environmental impact;
- Continually improve the environmental performance and minimise impact through resource and energy management and pollution prevention;

- Manage our carbon footprint and energy consumption through use of technology, process improvements, energy optimisation and other efficiency measures; and
- Adopt plans and measures throughout our operations and infrastructure to mitigate the longer term risks of climate change.



### VEHICLE EMISSIONS PROFILE

ComfortDelGro has always been among the first adopters of the Government's Green Policies in deploying suitable vehicles for service in support of the environment. All over the world, we are converting our fleets to higher standards, with hybrids and electric vehicles (EVs). In all, Green vehicles make up slightly more than half of our close to 43,300-strong vehicles worldwide.

A significant trend in the transport industry is the roll-out of cleaner, less pollutant vehicles – namely electric, hybrid, fuel cells or Compressed Natural Gas (CNG).

Car manufacturers are responding to this demand by going electric or hybrid in their new models. They are also promising that their vehicles can travel for comfortable distances in between charging.

In Singapore, we expect to phase out diesel in our taxi operations by 2024. In fact, ComfortDelGro Taxi had put two fully-electric Hyundai Ioniq taxis on trial in July 2018. Unlike existing electric taxis here that takes a couple of hours to charge, this electric Ioniq taxi – the first of its kind here – charges fully in just under 30 minutes. A fully charged electric Ioniq taxi travels more than 200km, but the cost of charging it fully is only a-third of the cost of diesel for the same distance.

In January 2019, ComfortDelGro expanded its EV trial with the latest Hyundai long-range fully electric vehicles. The Hyundai Kona Electric taxi comes with a 64 kWh lithium polymer battery – twice the power of the battery of the fully electric Hyundai Ioniq. This means that this EV model is able to travel up to about 350km when fully charged. And, with Direct Current (DC) fast



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charging capabilities, the vehicle fully charges up in just slightly more than an hour.

To support the EV trial, ComfortDelGro became the first in Singapore to introduce DC fast charging for EV for commercial use. The Terra 54 CG charging station, is operated by the Group's wholly-owned subsidiary ComfortDelGro Engineering in partnership with global EV charging software and solutions provider, Greenlots.

As at December 2018, our taxi fleet in Singapore comprised 18.3% Euro 4 taxis, 63.3% Euro 5 taxis, 2% Euro 6 taxis and 16.5% hybrid taxis.

In China, we invest in dual-fuelled taxis that run on both CNG and petrol. Over 70% of the fleet in China is environmentally friendly CNG vehicles. Nanjing ComfortDelGro Dajian Taxi operates a total of 679 CNG-driven taxis while Chengdu ComfortDelGro Taxi operates a total of 488 CNG-driven taxis.

We do not just buy Green vehicles, we also work hand in hand with our vehicle manufacturers and fuel suppliers in the field of Green Engineering, providing them with valuable feedback about the engineering performance of prototype vehicles and fuel technologies.

From 1 January 2018, diesel vehicles have to meet the Euro 6 emission standards, up from Euro 5 previously. In line with this, our listed subsidiary, VICOM had added Euro 6 and JPN 2009 into its scope of emission tests.

In 2018, ComfortDelGro Engineering bought a purposed built machine from Italy for the re-conditioning of the diesel exhaust particulate filter (DPF). This machine uses hydro-chemical effect to treat choked DPF making it more environmentally friendly. It is also capable of treating severely choked DPFs which would otherwise be disposed as scrap. To-date, 1,385 DPFs have been reconditioned.

Our global bus fleet is also at the forefront of Green technology.



In Australia, ComfortDelGro Corporation Australia (CDC) in Victoria had succeeded in its endeavour to introduce the largest hybrid bus fleet in Melbourne. As part of its deliverables under the new metropolitan bus contract, 50 of its diesel buses will be replaced with Volvo Euro 6 hybrid vehicles. Mechanics were also trained in preparation for the new technology.

In United Kingdom (UK), Metrolink is keeping in line with its philosophy to maintain a young, environmentally friendly fleet. Hybrid buses make up more than 20% of its fleet of 1,830 buses. After launching the world's first all-electric, zero-emission double deck bus service in London in 2018, Metrolink began operations of the existing Route 46 using 23 fully-electric single deck buses. In 2019, it will be commencing operation of fully-electric double deck buses on Route 43 at Holloway and Route 134 at Potters Bar.

In 2018, SBS Transit, our listed subsidiary and a major public bus operator in Singapore, had 3,471 buses in its fleet, of which 78% is Euro 5-compliant or better. This was an increase of 244 buses or 11% compared to the previous year. This also meant that its fleet emit less pollutants into the environment, thereby reducing its carbon footprint. The average age of its fleet was about seven years. It also operated a total of 222 bus routes in 2018, up from 208 in 2017, while the mileage of its buses increased to 203.3 million km in 2018, up from 191 million km in 2017.

In October 2018, it received 25 of 50 Volvo B5LH diesel hybrid buses (DHBs) that have been procured by the Land Transport Authority (LTA) for fleet trials. These DHBs are expected to be more emissions friendly to the environment and also reduce operations and maintenance cost by up to 23%. The six-month trials started in December 2018 and had been deployed across three different bus services.



## ENERGY EFFICIENCY

Being in the land transport business, energy efficiency ranks high on our priority list. This is especially important given the amount of time our vehicles spend on the road. Most of our taxis, for example, run practically non-stop as the bulk of them operate on dual shifts.

In all, our operations consumed about 1,077 GJ of fuel in 2018.<sup>1</sup> We are closely monitoring the development of renewable energy sources and will explore the adoption of such energy sources when it is feasible to do so.

Better fuel efficiency was achieved through initiatives like EcoDrive in the UK and Scania Optimise in Australia, where drivers are trained on how to maximise fuel efficiency. In the Optimise system, the driving performance of drivers is tracked and weekly reports provided to show them how they have performed in reducing emissions and fuel consumption.

<sup>1</sup> Fuel sources include petrol, diesel, CNG, and the gas supply in the United Kingdom (UK).

Table 1: Electricity Consumption

Electricity Consumption <sup>2</sup> (kWh)	2017	2018
ComfortDelGro	401,904,408	481,170,994
SBS Transit	366,492,666	447,333,433 <sup>3</sup>
VICOM	5,388,303	5,091,584

SBS Transit took over the operation of the newly-built Ulu Pandan Bus Depot in July 2018, which was purpose built to house 470 buses. The 102,000 square metres depot is the first to have the Photovoltaic Solar Panel System, which comprises more than 2,000 solar panels generating about 2,500kWh of electricity. The depot is expected to consume about 70% of the solar energy and the remaining 30% can be sold back to the power grid, with the proceeds translating to a net saving of about 30% in electricity costs.

Table 2: Greenhouse Gas Emissions

Carbon Dioxide Equivalent (tonnes)	2017 <sup>4</sup>		2018	
	Scope 1	Scope 2	Scope 1	Scope 2
ComfortDelGro	959,739	168,431	956,731	201,185
SBS Transit	370,874	153,634	396,397	187,522
VICOM	268	2,259	364	2,134

In 2018, Greenhouse Gas emissions from fuel and electricity for our major bus, taxi and rail businesses in Australia, Singapore and the UK registered carbon emissions of about 1,157,916 tonnes of CO<sub>2</sub> equivalent<sup>5</sup>.



### RIGOROUS MAINTENANCE

Under the LTA regulations, all buses must go for half-yearly Roadworthiness Certification conducted by authorised inspection centres. This inspection involves checking the steering, oil leakage, suspension system, corrosion, brakes and smoke emission. The bodywork of buses is also checked for passenger safety and the buses put through a Chassis Dynamometer Smoke Test. SBS Transit achieved a 100% pass rate for 2018.



### WASTE MANAGEMENT

Day-to-day operational waste and waste generated from the commuters contribute to the bulk of the general waste of the business. These wastes are generally removed by authorised contractors to be disposed at landfills or incinerated.

As for hazardous wastes, they are typically generated from the repair and maintenance of vehicles. Similarly, the hazardous wastes are collected within specific containers and removed by specialist contractors. This ensures that all hazardous items are responsibly disposed.

In 2018, our businesses generated 7,476 tonnes of waste materials (Table 3), which include batteries, engine oil, tyres, metal, drums, papers and cartons<sup>6</sup>.

Table 3: Waste Disposal

Waste <sup>6</sup> (tonnes)	2017	2018
Non-hazardous waste not recycled	2,162	1,958
Hazardous waste	4,207	3,676
Waste sent for recycling	1,610	1,842
Total	7,979	7,476

Recycling bins are placed at strategic locations in our offices to encourage staff to recycle. Recycling days are also organised where employees are encouraged to bring paper, plastic and cans from their homes for "deposit" into the bins.

In our Singapore bus depots, our technicians started the use of tablets instead of paper checklists and forms when carrying out maintenance works. Using the Bus Mobile Maintenance System (BMMS), they obtain work instructions, drawings, electrical schematics and parts information to carry out their work. They are also able to access the bus manufacturers' portal to obtain more detailed bus maintenance information from their e-manuals. The use of the BMMS not only improves efficiency and storage, but also reduces paper usage.

Paper consumption in our Singapore and the UK's operations decreased from 38,992 reams in 2017 to 36,095 reams in 2018. A total of 51,025kg of paper and cartons was collected for recycling in Singapore in 2018 – a decrease from 70,505kg in 2017.

<sup>2</sup> Electricity consumption for ComfortDelGro includes Singapore, Australia, China and the UK.

<sup>3</sup> Increase in SBS Transit's electricity consumption due to inclusion of Downtown line Phase 3 operations which opened in October 2017.

<sup>4</sup> 2017 emissions figure restated due to data entry error.

<sup>5</sup> Greenhouse Gas emissions excludes operations in Vietnam, China and Malaysia.

<sup>6</sup> Waste disposal includes Singapore, Australia, China and the UK.

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### WATER

The most significant use of water in the Group pertains to the washing of vehicles.

The new Singapore Ulu Pandan Bus Depot is the first to use NEWater for non-potable uses such as bus washing. This will result in savings in potable water consumption of more than 9,000m<sup>3</sup> per year, which is equivalent to the size of nearly four Olympic-sized swimming pools.

Table 4: Water Consumption

Water Consumption (m <sup>3</sup> )	2017	2018
ComfortDelGro	2,053,966 <sup>7</sup>	2,423,621
SBS Transit	885,886	1,169,867
VICOM	41,921	42,597

Water consumption for ComfortDelGro increased from 2,053,966 to 2,423,621 cubic metres in 2018<sup>8</sup>.



### SUPPORTING COMMUNITY INITIATIVES

On Eco Action Day, which fell on 5 June 2018, ComfortDelGro Group organised an e-waste collection drive. Close to 500 items, including handphoned, laptops, monitors, keyboards, cables, earphones, and even shredders were collected in two months and eventually sold to a recycling vendor.

VICOM and SETSCO also supported the "Eco Action Day Recycling Campaign" by donating 4,500 sets of newspapers



to Willing Hearts, a charity that operates a soup kitchen, for its food preparation.

In addition, VICOM and SETSCO supported PROJECT 'RETHINK Plastic' which was organised by the Singapore Environment Council (SEC) to promote the three Rs – Reduce, Reuse and Recycle. Through this project, 350 bookmarks created from recycled plastics were sponsored as door gifts during the Singapore Environmental Achievement Award 2018.

Nanjing ComfortDelGro Daijian Taxi continued with their cultivation of 500 trees that were planted in 2012, in order to reduce the environmental footprint of each passenger's journey.

Besides organising various Green events throughout the year, ComfortDelGro also actively encourages staff to use water and electricity responsibly. Tips on how to save water, electricity and other resources – not just in the office but at home too – are regularly communicated to staff, either through emails or through notice board posters.



### EXTERNAL RECOGNITION

ComfortDelGro first received the Eco Office Label from SEC in December 2009. We were recertified in 2012, 2015 and then again on 16 March 2018. Each certification lasts for three years from the date of certification.

Having met both the technical competence requirements and management system requirements, the VICOM Emission Test Laboratory successfully cleared the International Standard ISO/IEC 17025:2005 surveillance assessment by the Singapore Accreditation Council in August 2018.

VICOM completed and cleared the surveillance assessment in accordance to the International Standard ISO 9001:2015 in October 2018.

SETSCO has been accredited as a Certification Body for the Water Efficiency Labelling Scheme (WELS) products administered by Public Utilities Board (PUB). WELS is a mandatory grading system with 0/1/2/3 tick rating denoting the water efficiency level of a product. It is administered by PUB and covers taps and mixers, dual-flush low capacity flushing cisterns, urinal flush valves and waterless urinal, washing machines and dishwashers for household use. It is mandatory for suppliers and retailers to obtain the relevant water efficiency labels for their products before advertising and displaying them for sale in Singapore.

<sup>7</sup> Water consumption for 2017 restated due to the data entry error.

<sup>8</sup> Water consumption for 2018 includes Singapore, Australia, China and the UK.