TIME TO CLEAR THE AIR
CLEAN AND LOW CARBON EURO 6 SOLUTIONS FOR ALL TYPES OF BUS OPERATION
Air pollutants lead to premature deaths and widespread health problems in many growing cities. Unfortunately, the transport sector is a major source of local emissions of particulates (PM). In fact, within cities – over 80% of these emissions can often be attributed to heavy diesel vehicles. Yet, our need for transports is constantly growing – a challenge that must be addressed.

While the challenge is great, the necessary shifts in behaviour and technology are actually readily available. And as such, so is the opportunity for future generations to inherit a brighter environment and improved quality of life through sustainable urban mobility – helping to literally clear the air.

But there’s no single magic “silver bullet” solution. The most practical, cost-effective and immediate way forward is to promote efforts in three key areas: Smarter and more attractive public transport, improved energy efficiency and a shift towards clean alternative fuels and electrification. And success is dependent upon active and parallel efforts across them all.

Did you know: Scania has been providing commercial soot-free buses since 1989. A co-operation with the city of Stockholm to improve city air quality, resulted in the introduction of the first fleet of clean bioethanol-powered city buses – representing a major leap in emission performance. The particulate emissions were reduced with over 75%, long before the Euro legislation on particulates even had come into place.

Did you know: In 2016, Scania sold 2,583 soot-free buses (Euro 6), representing 30.5% of our total bus sales.
Many cities around the world are showing leadership by long-term and strategic implementation of proven solutions for clean and low carbon public transport. By using cost effective Euro 6 engines and alternative fuels solutions, these cities dramatically reduce particulates, NOx and CO2 emissions – even in places where emission regulations are not yet in place.

We feel truly privileged and inspired to be part of their ongoing efforts.

CLEAN AND LOW CARBON AROUND THE WORLD.

IT’S NOT DIFFICULT

Cartagena, Colombia – a new, clean benchmark for Colombia
The first city in Colombia with a Bus Rapid Transit (BRT) system running on clean Euro 6 gas.

Virginia, South Africa – going clean without complex after-treatment
Gas buses allow the operation of clean Euro 6 technology without the hassle of complex after-treatment.

Stockholm, Sweden – no fossil fuels!
A fully fossil free bus fleet and an increasing number of waste and distribution trucks running on clean Euro 6 bioethanol, biogas, biodiesel and bioliquefied hybrids.

Kalmar region, Sweden – Expanding a cleaner future further
Both city and regional buses operate clean Euro 6 technology without the hassle of complex after-treatment.

Stockholm, Sweden
A fully fossil free bus fleet and an increasing number of waste and distribution trucks running on clean Euro 6 bioethanol, biogas, biodiesel and bioliquefied hybrids.

Madrid, Spain – a champion in the pollution battle
Actively deploying clean Euro 6 gas buses – to contribute towards the Paris climate targets at the same time as providing substantially cleaner city air.

Virginia, South Africa – going clean without complex after-treatment
Gas buses allow the operation of clean Euro 6 technology without the hassle of complex after-treatment.

Nagpur, India – getting out of oil-dependency
A large facility for Scania clean bioethanol and biogas buses powered by waste has been a crucial first step to help reduce India’s environmental problems and costly dependence on imported oil and natural gas.

Jakarta, Indonesia – attractive and clean public transport
The introduction of clean and comfortable Euro 6 gas buses on the No. 1 bus system corridor has started a much needed transition towards cleaner air in the city.
The Euro emission legislation was introduced in the 1990s in order to limit local emissions of harmful nitrogen oxides and particulate matter from trucks and buses.

With each step of this legislation, engines have become much cleaner. But with the 2013 move from Euro 5 to Euro 6, a tremendous leap was made by adding the requirement that the vehicles should conform to the emission standards over the life of the vehicle\(^1\). As such, Euro 6 has truly become the benchmark emission standard for cleaning up our cities.

\(^1\)For 700,000 km or 7 years respectively.

**EURO 6 -- THE CLEAN BENCHMARK**

Did you know:
With alternative fuels like gas and bioethanol, you could run even cleaner than Euro 6!

Did you know:
The inherently clean gas engine does not require advanced urea aftertreatment systems to reach Euro 6.

The difference between Euro 5 and Euro 6 is so remarkable that it can be seen without microscopes or advanced analysis — purely by looking at what comes out of the exhaust.
THE TECHNOLOGY OF EURO 6

The Scania Euro 6 solution is compact, flexible and low maintenance. Using well known Scania technology like variable geometry turbocharging (VGT) and exhaust gas recirculation (EGR) in combination with selective catalytic reduction (SCR), NOx levels are kept at a minimum while fuel economy and driveability stay true to the high Scania standards.

Scania Exhaust Gas Recirculation (EGR)
EGR Reduces NOx levels by cooling and reusing part of the exhaust gases, leading to increased fuel efficiency and strong environmental performance. When combined with Scania SCR as for Euro 6, the performance of the EGR system is carefully matched to provide the exhaust after treatment system with an optimised blend. In combination with Scania XPI (extra high-pressure injection) and Scania VGT turbocharging, the driveability and performance in each engine class is outstanding.

Oxidising catalyst
Oxicat is part of the Euro 6 aftertreatment system. It prepares the exhaust gases by balancing NO and NO2 levels through a catalytic process without any additives, and is fully integrated in the compact Euro 6 silencer.

Scania particulate filter
Removes remaining particles and soot, hydrocarbons and carbon monoxides from the exhaust gases. The filter is integrated in the Scania Euro 6 exhaust aftertreatment system and is designed to regenerate continuously during driving.

Scania Selective catalytic reduction (SCR)
Alongside a urea based additive (AdBlue), SCR ensures that exhaust gases are released with minimal nitrogen oxide content. A reaction taking place in the catalytic converter as AdBlue is injected into the exhaust.
CLEAN – AND LOW CARBON

LOCAL AIR QUALITY AND GLOBAL CO₂ GO HAND IN HAND

The future of the transport sector is not only about air quality, we also need to decarbonise. And there’s really no need to compromise – we can help you with both.

Scania provides the widest choice of alternative fuels and powertrains in the world – assuring a cost-effective commercial solution to power your clean Euro 6 fleet with a locally produced low-carbon alternative fuel.

By shifting to alternative fuels, you can also move all the way to Euro 6 even in regions where the available diesel fuel quality does not allow the use of clean diesel engine technology.

With our fuel partners, we supply turnkey solutions for both vehicles and fuels. We use locally produced sustainable biofuels, and can even turn sewage and organic waste into biogas, bioethanol or biodiesel for the local bus fleets. This not only means real clean and low carbon transport, but also creates local jobs, reduces dependence on oil imports, and boosts the local agricultural economy.

Did you know:

For Scania, alternative fuels means business as usual. We built our first biofuel engine in 1916, and a 100 years later, 24.5% of our global bus sales are low carbon buses, powered by biogas, biodiesel, HVO, bioethanol or hybrid-electric drivelines.
EURO 6 ALTERNATIVE FUELS AND POWERTRAINS

**Biodiesel**  
Produced from sources like rapeseed, soy and other oil plants — as well as waste cooking oil.  
83% Optimal CO₂ reduction of up to 83%*.  

**HVO – Hydrogenated Vegetable Oil**  
Produced from sources such as waste oil, rapeseed oil and animal fat.  
90% Optimal CO₂ reduction of up to 90%*.  

**Biogas**  
Produced from a number of sources, but the most cost efficient and sustainable source is local sewage or waste.  
90% Optimal CO₂ reduction of up to 90%*.  

**Natural gas**  
Natural gas is a fossil fuel, but since the methane molecule contains only one carbon atom the emitted amount of CO₂ during combustion is smaller compared to diesel.  
15% Optimal CO₂ reduction of up to 15%*.  

**Bioethanol / ED95**  
Can be produced comparatively easy — even on a small scale — from sources like sugar cane, wheat, cellulose and organic waste.  
90% Optimal CO₂ reduction of up to 90%*.  

**Hybrid**  
A combination of electrical driveline and traditional engine reduces the fuel consumption which leads to lower emissions and noise levels.  
The estimate refers to a hybrid and HVO combination.  
92% Optimal CO₂ reduction of up to 92%*.  

**Full electric**  
A fully electric driveline with either conductive or inductive charging infrastructure can ensure continuous operation without local emissions.  
Assuming renewable electricity production from wind and sun, 37% using average global electricity production, 98% using fossil electricity production from coal.  
98% Optimal CO₂ reduction of up to 98%*  
37% Optimal CO₂ reduction of up to 37%*  
Up to +31% increase of CO₂ emissions  
*Compared to standard diesel

Did you know:  
The organic waste and sewage from 1,000 people can power a bus for a year!

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POWERED BY WASTE

Lowering emissions is incredibly important — but there are many other factors and initiatives needed to increase the sustainability of our society as a whole.

Choosing a gas engine based fleet can help clean your city in more ways than one — by literally turning waste into a resource. With a local biogas facility, you can produce your own fuel using sewage and organic waste from industries — both agricultural and other — as well as from restaurants and households. A self-sustaining city is a cleaner city. Cleaner air, lowered dependence on imported fossil fuels and reduced waste from other industries — and all while creating local jobs. One could say it is “Responsible recycling of renewable resources” — but what it truly is, is improvement without compromise on all fronts.
The clean Euro 6 engine range for Scania’s buses and coaches

Scania has always meant freedom of choice. The Euro 6 engine range makes no exception. With the widest range of commercially viable fuel options, with options for hybridised and fully electric powertrains and with outputs ranging from 250 hp to 490 hp, there is a Scania Euro 6 engine for every application and situation – no matter your fuel availability or infrastructure.

The clean Euro 6 engine range for Scania’s buses and coaches

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The county of Stockholm (2 million inhabitants) power every single one of its 2,300 buses with clean renewable fuels.

A great example of cleaning up the whole region’s public transport.

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**Did you know:**

Most buses in a region are not found within the city centre. The suburban and intercity bus operations often represent most of the buses, fuel use – and emissions. So it is important to have a regional view when cleaning up and decarbonising your fleets!

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**City**

- City/urban
- Intercity

**Suburban**

- Intercity

**Bus rapid transit (BRT)**

- Intercity

**Occasional service**

- Intercity
At Scania, we have contributed to more than a century of bus evolution. This journey has taught us plenty and made us curious about society. How do people want to travel? What makes a good day for a bus driver? What is needed to make a bus the best choice for moving people from point A to B?

We believe that buses are a win for everyone – for you, for us, for communities and for passengers around the world. We want to move people both physically and emotionally in order to change their minds about bus transportation.