



# Sustainability

What is sustainable mobility,  
and why does it matter?



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Transport has played and continues to play a fundamental role in today's economy and society and has a large impact on growth and employment.

In Europe the transport industry directly employs around 10 million people and accounts for about 5% of GDP. The quality of transport services has a major impact on people's quality of life. On average 13.2% of every household's budget is spent on transport goods and services.

However transport also depends heavily on oil resources and represents 16.2% of greenhouse gas emissions globally,

contributing up to a further 10% indirectly through the manufacturing and infrastructure needed for the mobility of people and goods.

The latest IPCC report (March 2022) gives the clearest indication to date of how a warmer world is affecting all living things on Earth, and as the new report makes clear, around 40% of the world's population is "highly vulnerable" to the impacts of climate change.

At Astheimer Design we are focused on developing mobility solutions for a sustainable future, but what does sustainable mobility really mean?





*“Meeting the needs of the present without compromising the ability of future generations to meet their own.”*

In 1987, the UN defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own.”

It’s clear that we’ve reached a pivotal moment as a species; a fork in the road if you will. The need to fully embrace sustainability has never been clearer, but what does sustainability really mean now? Is it simply moving to electric drivetrains?

The answer is unfortunately not that simple; there is no silver bullet. It requires a holistic view of all the decisions we make when designing our products, services and infrastructures.

At Astheimer Design, this takes the form of three core principles considered throughout our design process.

Environmental, social and economic sustainability.

# environmental sustainability

The key principles to environmental sustainability when designing mobility solutions are energy efficiency, product longevity, circularity and of course minimising greenhouse gas emissions.

It means increasing efficiency across the whole transport system, offering a well-connected, multi-modal solution with each leg of the journey being as efficient as possible.

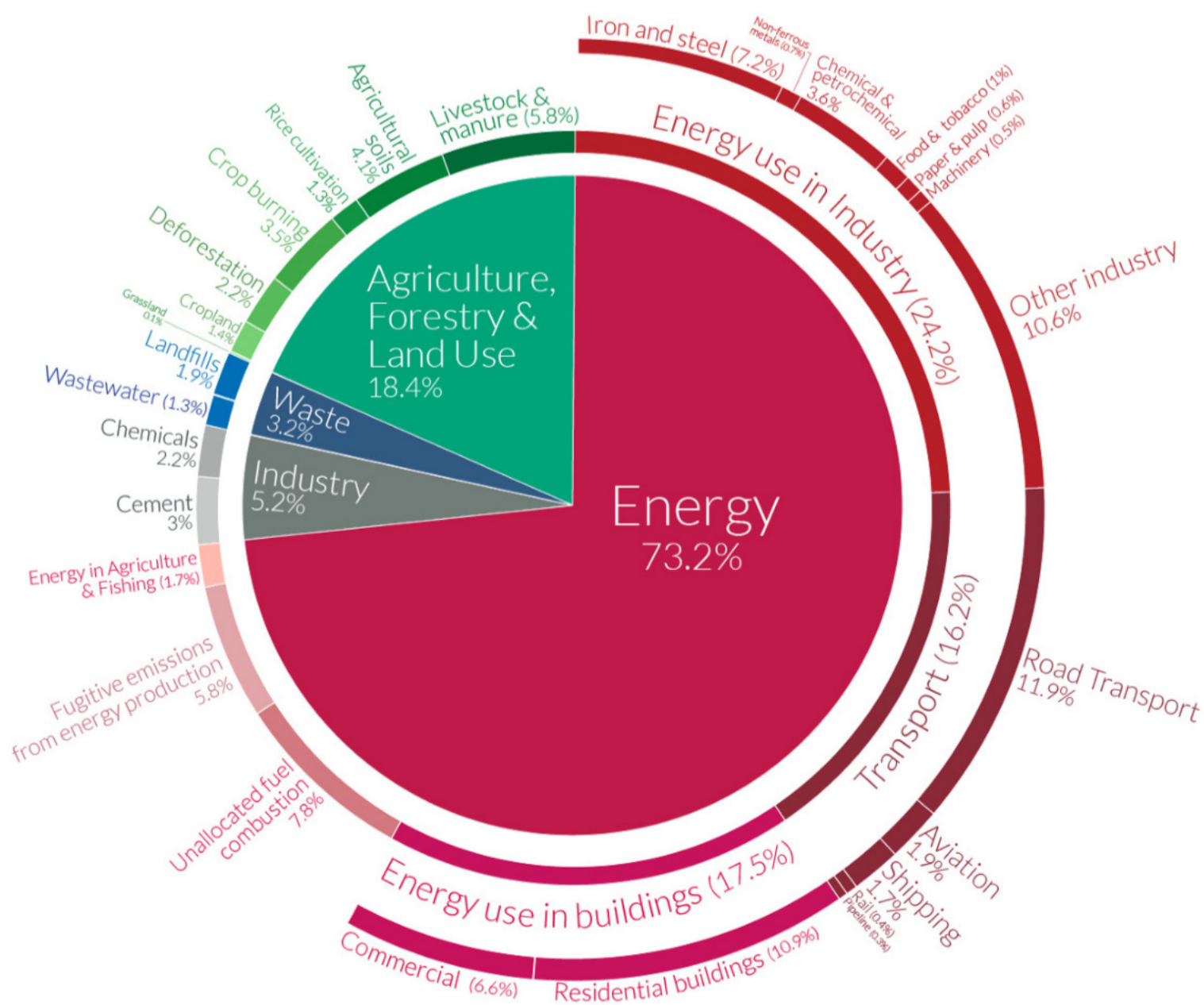
73% of global greenhouse gas emissions are created through energy consumption, whether that be from energy use in industry, in buildings or through transportation.

It means designing the most efficient purpose-built vehicles for their use, whether it be short regular commutes, longer distance goods or people transport solutions.

Energy efficiency is the most important consideration for the climate crisis.

It means reducing emissions where possible and choosing the most efficient drivetrain solution, whether it is electric – best suited to short distances and

What does this mean for mobility?



global greenhouse gas emissions by sector, world resources institute (2020)

smaller vehicles – or hydrogen for longer distances and bigger vehicles. In locations lacking the supporting infrastructure, we'll need a hybrid solution to bridge the gap.

Car sharing would also increase usage efficiency which at the moment for cars is less than 10%, this would allow far less vehicles to meet the needs of many more customers. This model is not without its complications, but autonomous vehicles may offer part of the solution.

Other schemes like the 1989 Mexico City "Hoy no Circula", which consisted of prohibiting the circulation of 20% of vehicles from Monday to Friday depending on the last digit of their license plates, had surprisingly strong results in reducing traffic, enhancing ride sharing and cutting down emissions. As cars then become a service rather than a product, manufacturers will need

to get as much value out of them as possible over their lifetime, instead of designing in redundancies as has been the norm. This strengthens the incentive to make vehicles easier to disassemble and repair, supporting a healthy technical cycle within a circular economy. The concept of circularity requires a complete rethink of our linear economy:

Our AURA concept is a road legal vision for a sports car with efficiency driving the design, and sustainability at its core. A visceral driving experience to go out and enjoy nature, where performance equates to range. This pure, iconic low-drag design has been crafted by the Astheimer Design team to show the immense possibilities that come with these new challenges.

As we move towards a sustainable future, it's crucial that we don't lose sight of what drives us to get out on to the road. *It's not always out of necessity.*

*"In our current economy, we take materials from the Earth, make products from them, and eventually throw them away as waste – the process is linear... a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources."*

**Ellen MacArthur Foundation**

# social sustainability

Social sustainability speaks to the impact upon people and our quality of life.

For a product or business to be called sustainable in this sense, it must be promoting the betterment of society.

We're currently working on a range of all-electric urban delivery vehicles with Swedish start-up Volta Trucks. People are at the heart of everything they do, so Volta focus on two key values. Safety and sustainability.

26% of pedestrian fatalities and 78% of cyclist deaths in urban environments involve a truck, yet trucks only account for 4% of road miles. Designing the Volta Zero without the need for an internal combustion engine allowed our team to

create an experience that maximises a driver's ability to make decisions quickly and safely. These features include a low riding position, minimal cognitive overload and a 220-degree field of vision.

The Volta Zero equally delivers a premium experience and workspace for drivers, encouraging recruitment and retention for fleet operators. A key global challenge that's only growing in importance for businesses and governments alike.

It's sometimes expected that environmental considerations are equal to a loss in performance. The Volta Zero is a great example of sustainable goals promoting valuable innovation in society.



# economic sustainability

What's important in the strive towards environmental and social sustainability is recognising that these need not conflict with other goals. Sustainability at its core is about the potential for something to last.

We've explored the need to meet environmental goals and for solutions to provide a benefit to society but for true sustainability it's vital that these are paired with financial viability.

We live in a world where people decide with their feet and with their bank balances. It doesn't matter how many solar panels your latest invention includes, or the revolutionary new features it has. If people don't want to buy it, it's not sustainable.

At Astheimer Design, we ensure the best chance of success by making each product we design unique, relevant and desirable.

Uniqueness is important in a competitive environment, positioning the product where there is space in the market. Equally important is that the product is relevant to the target market, addressing the pain points within its use case.

But being unique and relevant is also not enough. It needs to appeal to the user. Whether personal or commercial, vehicles are an expression of their user or of the company values they are representing. They are a significant cost and we all want to be proud of the investments we make.



childseat compatible



80 litre lockable storage



50cm<sup>2</sup> cargo bed

A key factor for economic sustainability in a fast changing mobility sector is also the ability to embrace change and the flexibility of a company to identify and satisfy new opportunities.

This is difficult for the legacy companies, but opens up the opportunity for start-ups especially as electric drivetrains become commodities.

The more established companies have their infrastructures in place, but find it more difficult to move quickly, to change and create vehicles for niche markets. Start-ups have greater flexibility and

speed, and are more willing to take risks, but often underestimate the magnitude of developing not just a new product, but a brand and the entire infrastructure to go with it.

Astheimer Design is a consultancy that advises and works for both established OEM's and start-ups going through this turbulent transition period identifying opportunities, and developing sustainable mobility solutions, by understanding the market needs, identifying opportunities, exploring solutions and developing expertly executed vehicles.

*"We point very clearly to the cities of the world as a key place for mobilisation... While large cities are hotspots for climate impacts, they also offer a real opportunity to avoid the worst impacts of warming. As cities continue to grow they can push for renewable energy, greener transport, and buildings. This could limit destructive climate impacts for millions."*

***Debra Roberts, IPCC Co-chair***

The biggest area of opportunity that mobility can make an impact is in cities.

This is where multi-modal interconnected transport systems need to be designed and introduced.

Micromobility, shared transport, autonomy, and public transport need to offer businesses and individuals relevant, desirable and functional solutions that will help keep cities mobilised efficiently and sustainably.



# sustainability is design

Simply put, sustainability is design.

Designing efficiency into the products. Designing products to last the test of time, to be reused and repaired rather than replaced.

Designing waste out of our economy and business practises. Designing products and services that are not limited by finite resources.

This won't happen overnight. We'll get there, piece by piece, by developing solutions to the world's largest challenges, considering key sustainability principles in the process.

A great guide are the 17 UN SDG's (Sustainability Development Goals).

The automobile has given us immense freedom, and we have the opportunity to build on that freedom on the journey towards a more sustainable environment, society and economy. To do this we will need a shift in mindset, of what success means to us as individuals and to society as a whole.

Sustainability is a key part of all projects we work on at Astheimer Design.

To learn more about the work we do and what drives our philosophy towards sustainable design, check out our website at [astheimerltd.com](http://astheimerltd.com).

If you share our values in building a sustainable future, get in touch with our team to discuss your upcoming projects.



ASTHEIMER  
DESIGN

Unit 9, St George's Park  
Warwick, CV34 5DR  
+44 (0) 1926 842 354  
carsten@astheimerltd.com  
astheimerltd.com