



With rapid technological improvements and falls in battery prices, improving performance and reducing the cost, experts predict that **by 2050, 90% of new-build cars will be powered by electricity.**

However, it's not only roads where transport is decarbonising; electricity may soon power more of the world's trains, plus its planes and boats.

Taking trains forward

The electrification of the rail industry has arguably been in the making for a lot longer than EVs but there's still progress to be made. Trains are already one of the most-efficient modes of long-distance transport, and Network Rail claims electric models' **carbon emissions are 20% to 35% lower than diesel trains.** Electric trains also accelerate and brake faster than diesel-powered models, and cause less wear to tracks.

Take off for electric planes

Of all transport modes, air travel has made the least progress in electrification but there's hope yet. Airbus, Rolls-Royce and Siemens recently teamed up to develop the technology needed to create electrically-powered aircraft. The companies plan to fly a demonstrator aircraft with one of its existing jet engines replaced by an electric unit in 2020.



Paul Stein, chief technology officer at Rolls-Royce, said: "Aviation is the last frontier of the electrification of transport. It could lead to a step change in the way we fly with greater efficiency and less noise."

These proposed hybrid-electric aircraft are not powered by on-board batteries like EVs but with **a gas turbine that generates electricity to drive the propellers.** This

will **save up to 15% in fuel burn and CO₂ emissions**, be 50% quieter and 10% cheaper for airlines to buy and operate, with the cost saving potentially passed on to passengers.

Testing new waters

There's a lot of buzz coming out of the maritime industry too. Every year marine transport **emits 1,000 million tonnes of CO₂**, which is why the International Maritime Organization (IMO) has agreed that a reduction of 50% should come by 2050 compared with 2008 levels. Although **the deal** fell short of more ambitious targets preferred by those ranging from the European Union to environmental NGOs, the IMO did also commit to pursue efforts toward phasing out CO₂ emissions entirely.

As Paris Agreement goals to cut carbon dioxide emissions loom, businesses around the world are innovating.

Small fleets of battery-powered boats designed for fjords and inland waterways in **Norway, Belgium and the Netherlands are preparing to set sail**, including some able to run autonomously without a crew.

Dutch company Port-Liner is also gearing up to launch the first fully-electric, emission-free barges in Europe. Dubbed 'Tesla' ships, Port-Liner Chief Executive Officer Ton van Meegen **claims these barges would be the first in the world to sail on carbon-neutral batteries**. The first six barges alone are expected to remove 23,000 trucks from the roads annually in the Netherlands, replacing them with zero-emission methods of transport.

China also recently launched an **electric cargo ship** to haul coal which, whilst not doing much for its ambitions to cut pollution, will at least eliminate shipping emissions from diesel engines. Electric ships may not yet be the norm globally but progress is underway to cut the 2.5% of global greenhouse emissions that result from the maritime transport industry.

Once a far-flung fantasy in some areas, electrified transport is fast becoming a reality. EVs and rail are leading the way, but it's clear the electric transport revolution has a long way to travel.
