Fuel Station of the Future

Foster + Partners in association with Nissan

The Fuel Station of the Future is a vision of the future of mobility and its role in the development of a sustainable urbanism. The project reimagines how cars could be integrated into the urban fabric and be part of a holistic, sustainable solution that brings together transportation and energy production and distribution. The need for a sustainable and innovative refuelling network is becoming vital as the market shifts toward alternative sources like electric power. Seamlessly integrating emerging clean technologies into the built environment is vital in creating smarter, more sustainable cities.

There is a direct correlation between urban density and energy consumption – more compact cities can mean substantial energy savings. With transport consuming approximately one-third of the total global energy consumption we are faced with an inescapable imperative to improve efficiency within cities and to establish sustainable urban forms. The future city will be smart and connected, with cars, people, buildings, infrastructure and nature, all interacting in harmony. By developing technologies such as electric vehicles and autonomous drives – congestion, road accidents and air pollution could be massively reduced, and the extraneous space that once was occupied by car-related infrastructure can be replaced by green civic spaces.

The collaboration between Foster + Partners and Nissan, carried out over of a 12-month period, offers a snapshot of what's to come from a world where cars could connect with the urban infrastructure including road, information and electric power networks, using vehicle-to-grid, battery storage, wireless charging, autonomous drive technology and over-the-air connectivity, to revolutionise how energy is used and distributed across the city. With smart roads that communicate directly with the vehicles, traditional charging routines could be a thing of the past. Throughout their journey, vehicles could top up their charge all through the day. This will give rise to smaller battery packs and more optimised vehicle designs. As car batteries become more efficient, they could be used to supply electricity back to the grid, when the cars are idle, becoming an integral part of the urban infrastructure.