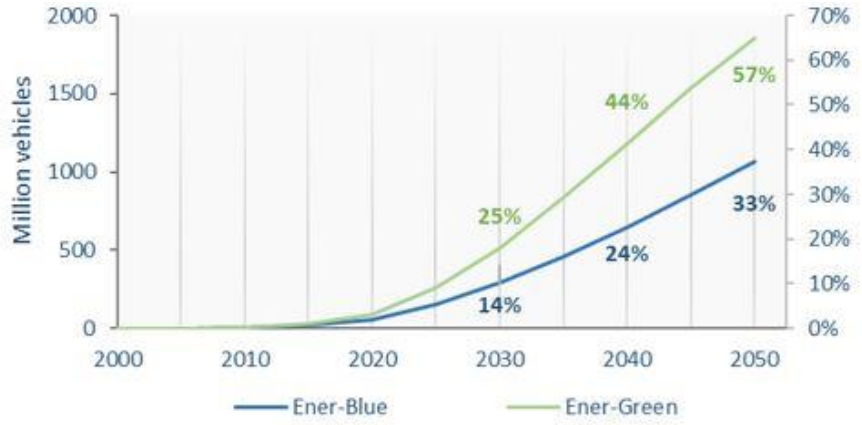
# Up to 50% of the global car fleet could be electric* in 2050

**Executive Brief – February 2018**

## Road transportation will hence play a key role in limiting and reducing $CO_2$ emissions

Based on the latest update of our EnerFuture scenarios (January 2018), the share of electric vehicles in the total global car fleet could reach up to 44% in 2040 and more than 50% in 2050. These levels are achieved in our Ener-Green scenario (strong decarbonation, compatible with a 2°C temperature growth limitation); in Ener-Blue (NDCs objective achieved, compatible with a 4°C temperature growth limitation), this share hits 24% in 2040 and 33% in 2050. In 2016, with 2 million electric cars, the share of electric cars in the total car fleet reached only around 0.2%.

### Stock of electric and hybrid cars




| Avoided oil consumption (Mbl/d) | 2040 |
|---|---|
| Ener-Blue | 8.2 |
| Ener-Green | 12.9 |

Source : Enerdata – EnerFuture

With 16% of the total $CO_2$ emissions, road transportation will hence play a key role in limiting and reducing $CO_2$ emissions. Electric cars and other decarbonated EV technologies will contribute to limiting both GHG emissions and local air pollution by displacing gasoline and diesel consumption. In 2040, up to 13 Mbl/d oil consumption could be avoided in Ener-Green (20% of the daily oil production) thanks to electric and hybrid vehicles.

*EnerGreen scenario (2°C compatible), including electric and hybrid cars

Such a penetration of electric vehicles will have a significant impact on power supply and distribution grids in the residential and commercial sectors. According to Enerdata's projections, electric vehicles would represent 7% of the total increase in electricity demand between 2016 and 2030; the IEA estimates that such a development of electric cars with unmanaged charging could result in a 30% increase of peak demand. In a 2°C world (Ener-Green), profound mutations will occur in the electricity generation sector by the mid-century: specific emissions of the power sector will be reduced by -71% globally, with a key-role for biomass, wind and CCS technologies. Addressing and mitigating the potential impact of electric vehicle charging will be essential to ensure grid stability and minimize the costs associated with such a development of electric vehicles.

## EnerFuture Scenarios

EnerFuture scenarios are yearly updated to take into account recent events

### Ener-Green

This scenario explores the implications of more stringent climate policies with countries fulfilling their NDC commitments and then regularly revising their emissions goals. Ambitious efforts are made to phase out fossil fuel subsidies and to enable a strong deployment of renewables. Under this new green deal, world emissions are divided by 2 by 2050, the global temperature increase is limited at +2°C.

### Ener-Blue

Ener-Blue provides an outlook of the energy system based on the successful achievement of the 2030 NDCs' targets as announced at the COP21 and revised since then. Global energy demand increases, driven by the growth in China and other emerging countries, but NDCs enable to control the energy demand growth and $CO_2$ emissions until 2030. These efforts are compatible with a 3-4°C objective.

### Ener-Brown

This scenario describes a world of durably low fossil fuel energy prices; exploitation and production of unconventional oil and gas resources intensifies and expands globally, however confirmed energy commitments in some regions as well as technological innovation foster the deployment of renewables. Without a global agreement, global $CO_2$ emissions soar towards a +6 °C temperature increase.