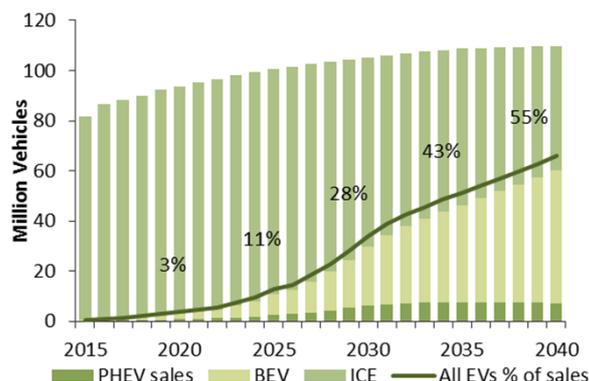


## Benefits of adopting an Electrical Vehicle strategy

### Issue

The electric vehicles (EVs) adoption rate is accelerating on a global scale thanks to their advancing environment friendly technology. In addition, the total cost of ownership for some EV types has become comparable to that of conventional Internal Combustion Engine (ICE) vehicles in many parts of the world. These trends attracted the attention of local Qatari stakeholders to investigate the EV adoption requirements, and to compare them to the other existing alternatives, primarily ICE and CNG (compressed natural gas) vehicles in terms of local impact and potential on different transportation levels (light EVs up to bus EVs).

*The market of EV is growing continuously*



### Solution

Iberdrola Innovation ME has developed two models to answer the following questions:

#### ***How does the total cost of ownership of electric buses compare to diesel and CNG buses in Qatar?***

The developed model includes aspects like, fuel, maintenance and infrastructure costs of the different bus types. The model sensitivity to varying fuel and electricity prices was also assessed. The results for Qatar were corresponding to the global trend that favours electric buses adoption which is strongly influenced by rapidly falling battery costs.

#### ***What are the oil displacement and CO<sub>2</sub> emission reduction factors resulting from EV adoption?***

These parameters were assessed against different levels of EV penetration into the Qatari market from 0% to 100%, with the assumption that the electricity used to power cars is mainly generated from natural gas resources. Significant savings in equivalent oil barrels, in addition to CO<sub>2</sub> emissions reductions were obtained as the EV penetration approached higher levels up to 100%.



*EV can decrease the carbon foot print with 50%*

### Impact

The developed models and analysis for the Qatari market provide the local stakeholders with powerful tools to aid the EV adoption decisions. The results highlighted the compelling potential of electric buses and vehicles in Qatar compared to other alternatives, and took into account local inputs such as the electricity generation based on natural gas in Qatar. The results are highly relevant to the local market. The models are versatile and can be adapted to different market needs by adjusting their inputs accordingly.

