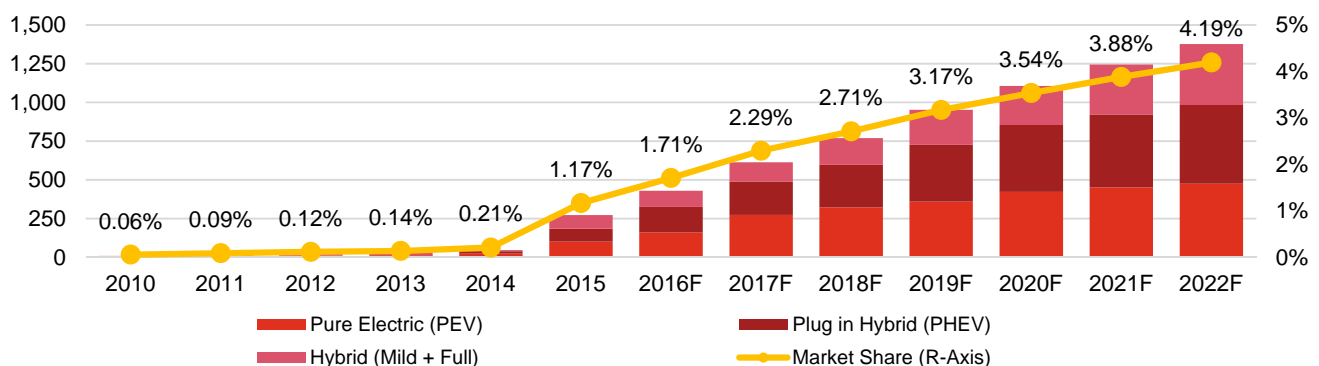


## China: An alternative future

### Can alternative vehicle sales grow without incentives?

Buyer cash incentives have driven the growth behind alternatively fueled vehicles since 2014. Will the demand for so-called “new energy vehicles” continue to thrive once those incentives end in 2020?

**China: Alternative Energy Vehicle Assembly Outlook**  
2010 – 2022 (thousands)



Source: Autofacts 2016 Q3 Forecast Release

### The current landscape

As the pollution and congestion continues to plague China’s mega-cities, government officials have extended their focus on enhancing clean energy sources within the market. Automotive emissions, fairly or not, have been a primary target in these efforts, and the development and mass adoption of “new energy vehicles” (NEVs) which include pure electric and plug-in hybrids, is at the forefront of these initiatives. Government-sponsored initiatives have included generous cash incentives for NEV purchases and various subsidies to encourage research and development within the industry on advanced low-emission technologies. These measures have been fruitful as sales of NEVs have improved consistently since 2014. The sustainability of these gains will be in question though, as the buyer cash incentives are set to gradually phase out from 2017, ending completely in 2020. Product offerings have expanded, but further investment will be needed if NEV growth can sustain itself going forward – without the need for government-backed catalysts.

With the continued emphasis from national programs and incentives, both domestic and foreign OEMs have indeed begun rebalancing their portfolios, offering an increasing number of NEVs. The focus, however, has been on small, entry-level vehicles. In 2015, of the

roughly 113 thousand electric vehicles sold, 87% were within the mini and or small size segments. Among the 63 thousand plug-in hybrids sold, 96% were compact cars, and with conventional full hybrids, sales volumes were split evenly between compact and mid-sized cars. In contrast though, the market as a whole has shown a definite shift towards larger utility vehicles, with sales of SUVs growing by a staggering 61.9% in 2015 when compared to 2014. The popularity of the segment hasn’t slowed in 2016, with sales up yet another 47.9% year-to-date through May. If NEVs are to truly reach mass penetration and move away from the reliance on subsidies to attract consumer buy-in, the product offerings will need to better reflect the changing preferences of the Chinese market.

### Greener pastures

In response to the shifting market dynamics as well as the sunseting subsidies, the competitive landscape is already changing. Though NEV development costs, particularly with pure EV batteries, remains as a market barrier, new players are entering the field with alliances and partnerships. Suppliers are bidding for idle capacity at existing facilities for EV production licenses, while technology companies are introducing their own EV brands, like LeTV. As the competition heightens and new players – and new sectors – enter the field, OEMs are making moves we well, with most

global joint venture OEMs renewing their pledge to bring more NEVs to the market in China. Recent headlines include several significant investments, including:

- A \$20 billion RMB investment by LeEco in the creation of an “automotive ecological town” that includes an EV production facility, charging stations, and aftermarket services.
- An \$11 billion RMB investment by BYD to build a 10 GWh battery factory
- A \$5 billion RMB investment by Chehejia in an EV assembly plant with lithium-ion producing capabilities.
- A Bosch lithium-ion battery production facility
- Wanxiang’s purchase of the both the Fisker brand as well as a battery production facility.

These ambitious initiatives are expected to fuel the momentum of recent growth while helping to ease the reliance on subsidies to encourage NEV growth.

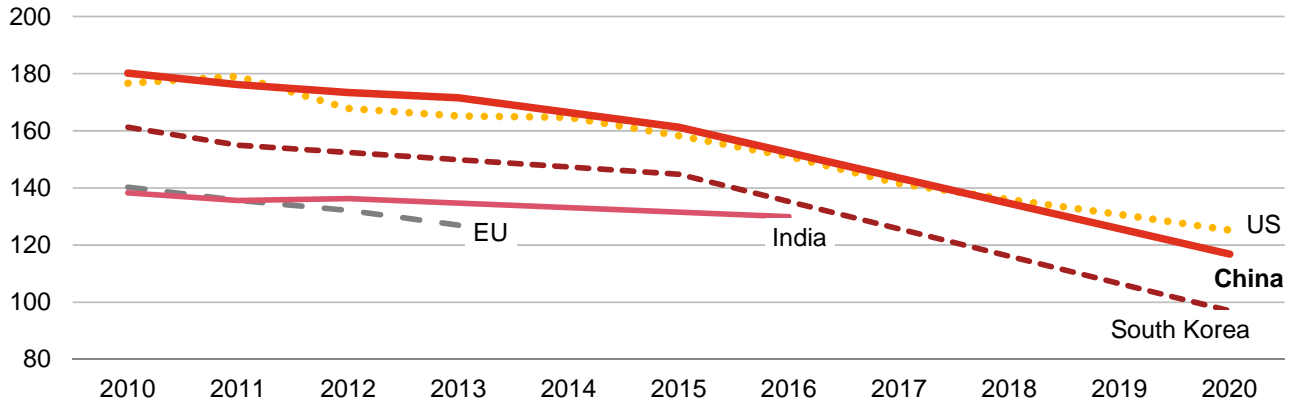
The other important factor in driving the growth of alternatively fuelled vehicles will be consumer

adoption. While buyer rebates have spurred the three-fold growth in 2015, the current volume is based on smaller sized vehicles with lower price-tags. OEMs will need to move behind just a value proposition. Safety, reliability, convenience, quality and overall driver experience are all areas where NEVs must improve in terms of consumer perception to gain mass appeal. Though the government has ambitious goals of reaching 5 million in NEV production by 2020, the Autofacts forecast recognizes the difficulty to achieve this mass-level change in consumer buying behaviour. Our assembly forecast calls for 3 million units of NEVs and 1 million of conventional hybrids by 2020, which, though shy of the national goals, still represents significant growth. This continued uptick in NEV production in China will drive the topline growth of alternatively fuelled vehicles globally given the sheer volume and magnitude of the market.

To continue this conversation and find additional information on PwC’s automotive capabilities, please visit [pwc.com/auto](http://pwc.com/auto).

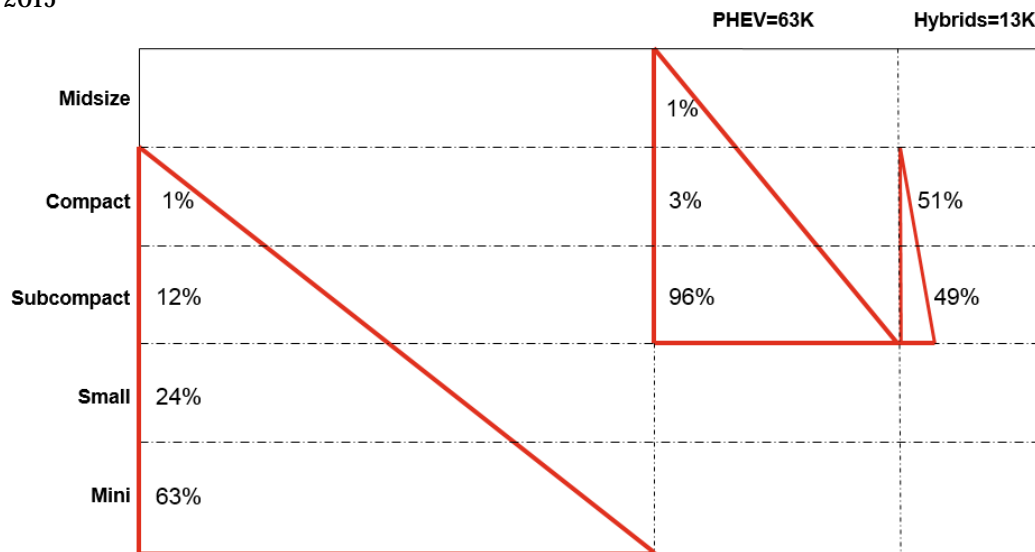
### Select CO2 Emissions Standards

2010 - 2020



### Sales Breakdown of Alternative Vehicle

2015



Source: ICCT (International Council on Clean Transportation), China Business Update