Cost projections

Batteries, vehicles and TCO

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EV sales are supporting technology cost declines

Source: Bloomberg New Energy Finance
Technology consolidation + demand growth = lower battery prices

Lithium-ion battery pack price ($/kWh)

- Observed price
- 18% learning rate

Source: Bloomberg New Energy Finance
The contribution of the battery on total manufacturing costs will drop rapidly estimated pre-tax retail prices for medium-size BEVs in the U.S.

Source: Bloomberg New Energy Finance, EPA, NHTSA, IDL, FEV Note: Shows estimated pre-tax retail prices
U.S. car market segmentation and average retail price

Source: Bloomberg New Energy Finance Note: 2016/17 data.
Falling capital costs and better economics will lead to large-scale EV adoption

Annual global light duty vehicle sales

Global light duty vehicle fleet

Source: Bloomberg New Energy Finance
TCO breakdown
private medium-size passenger vehicles in the U.S.

Share of total costs, 2018

ICE
- Maintenance: 75%
- Fuel: 14%
- Capital: 11%

BEV
- Maintenance: 87%
- Fuel: 6%
- Capital: 7%

Source: Bloomberg New Energy Finance
With high utilization, parity hits sooner and lower medium-size passenger vehicles in the U.S.

Source: Bloomberg New Energy Finance Note: An ICE costs $25,000 and a BEV costs $35,850; gasoline price is $2.3/gallon and electricity price is $0.12/kWh; Total Cost of Ownership includes capital costs, fuel costs and maintenance
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