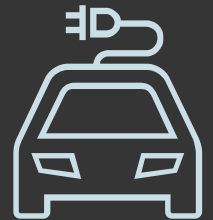


AlixPartners Automotive- Electrification Index

Third Quarter – 2017



AlixPartners Automotive Electrification Index

e-Range

E-RANGE =

Sum of electric range of all electric vehicles (EV) sold

- By automaker, segment, region and country
- Note: e-Range does not include range from internal-combustion-engine (ICE) sources in plug-in hybrids – Only the battery range is included
- The e-Range attempts to rank the electrically driven range, and as such, does not include non-plug-in hybrids (HEVs) such as the standard Toyota Prius

AlixPartners Automotive Electrification Index

ICE-vehicle equivalent market share

Using e-Range data, we can calculate an **ICE-vehicle equivalent market share**

Total number of full-ICE-equivalent-range EVs sold

Total number of vehicles sold (EV and ICE)

- By automaker, segment, region and country
- Full-ICE-equivalent EVs are defined as the electric range of the vehicle sold divided by 311 miles (500 km)
- Note: to make the EV equivalent to an internal combustion engine vehicle (ICE), the 311-mile (500-km) range approximates an equivalent range between fill-ups for ICE vehicles. Dividing by this factor results in a more illuminating view of overall electrification, as it counts vehicles with high-electric ranges as full alternatives to ICE vehicles and discounts small range city cars or compliance vehicles
- Note: range of the ICE vehicles are not normalized to 311 miles (500 km) – each ICE unit sold is counted as a full vehicle

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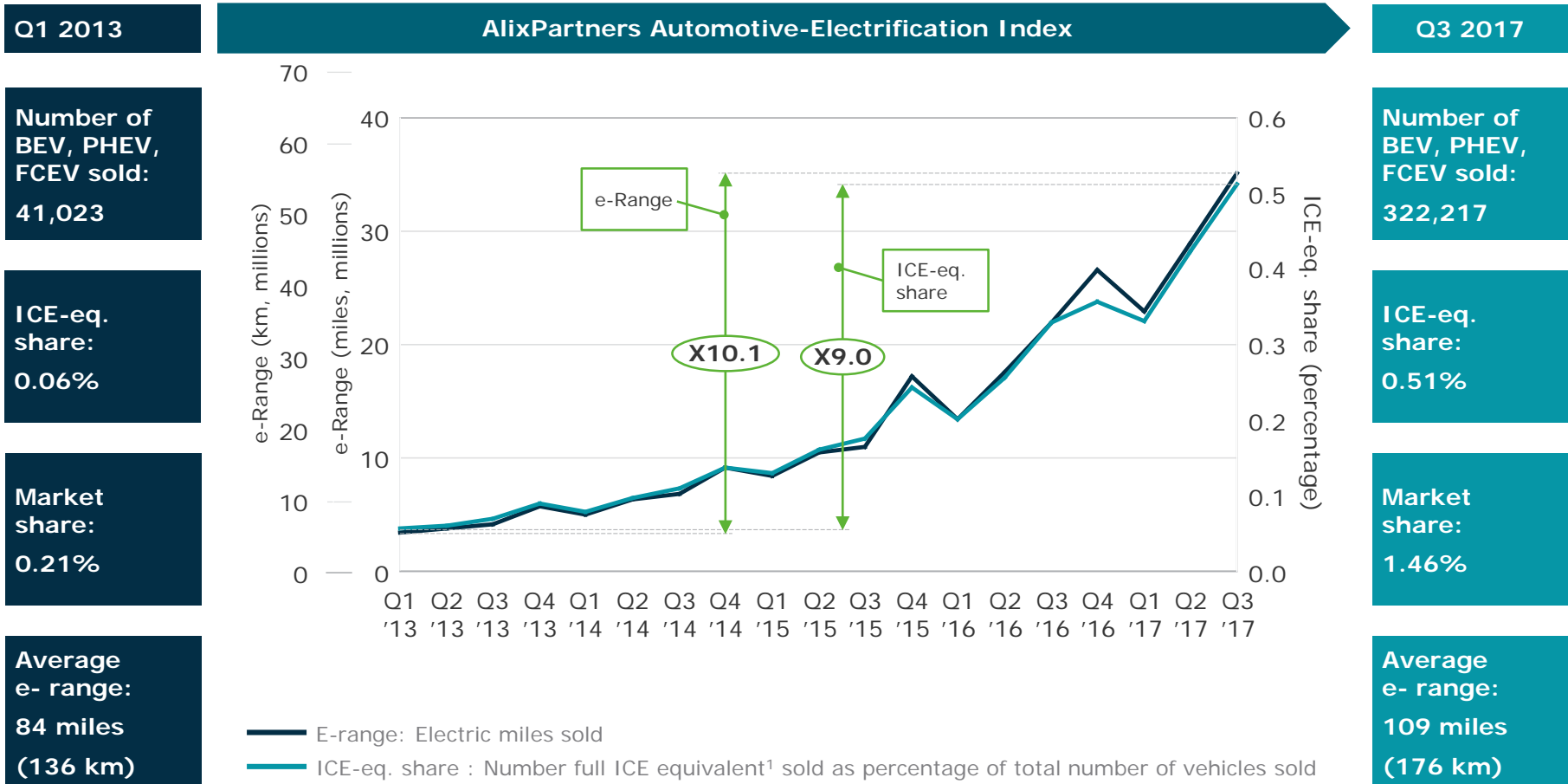
- **Goal:** 'e-Range' as a more meaningful measure than currently exists in the public domain for tracking the progress of electrification in the auto industry globally by region, country, segment and particularly by Automaker
- **Transparency:** Based on public available data and data validated directly by the Automakers
- **Sources:**
 - IHS Markit Ltd.: for total sales data (all vehicle types)
 - EV-volumes.com: for electric ranges for battery-electric vehicles (BEVs), plug-in hybrid vehicles (PHEVs), fuel-cell electric vehicles (FCEVs)
 - Automaker- and government-published websites: ditto the above
 - Discussions with Automakers to validate ranges, with several Automakers updating ranges beyond what was publicly available
- **Vehicle scope:** passenger cars and light trucks (GVW < 6 tons), which coincides with IHS Market's 'light vehicle' definition
- **Sales allocation by automaker:** based on IHS Markit's method for allocating vehicle sales to brands (including for joint ventures, upfitters, post-production customizations, etc.)

71 Countries in the Index

(where EV sales have taken place/are recordable to date)

AUSTRALIA	ESTONIA	MACEDONIA	SERBIA
AUSTRIA	FINLAND	MALAYSIA	SINGAPORE
BAHRAIN	FRANCE	MALTA	SLOVAKIA
BELGIUM	GERMANY	MEXICO	SLOVENIA
BERMUDAS	GREECE	MAROCCO	SOUTH AFRICA
BRAZIL	HONG KONG	NETHERLANDS	SOUTH KOREA
BULGARIA	HUNGARY	NEW ZEALAND	SPAIN
CANADA	ICELAND	NORWAY	SWEDEN
CHILE	INDIA	OMAN	SWITZERLAND
CHINA	INDONESIA	PANAMA	TAIWAN
COLOMBIA	IRELAND	PERU	THAILAND
COSTA RICA	ISRAEL	POLAND	TURKEY
CROATIA	ITALY	PORTUGAL	UKRAINE
CYPRUS	JAPAN	PUERTO RICO	UAE
CZECH REP.	JORDAN	QATAR	UK
DENMARK	LATVIA	ROMANIA	USA
ECUADOR	LITHUANIA	RUSSIA	URUGUAY
EGYPT	LUXEMBOURG	SAUDI ARABIA	

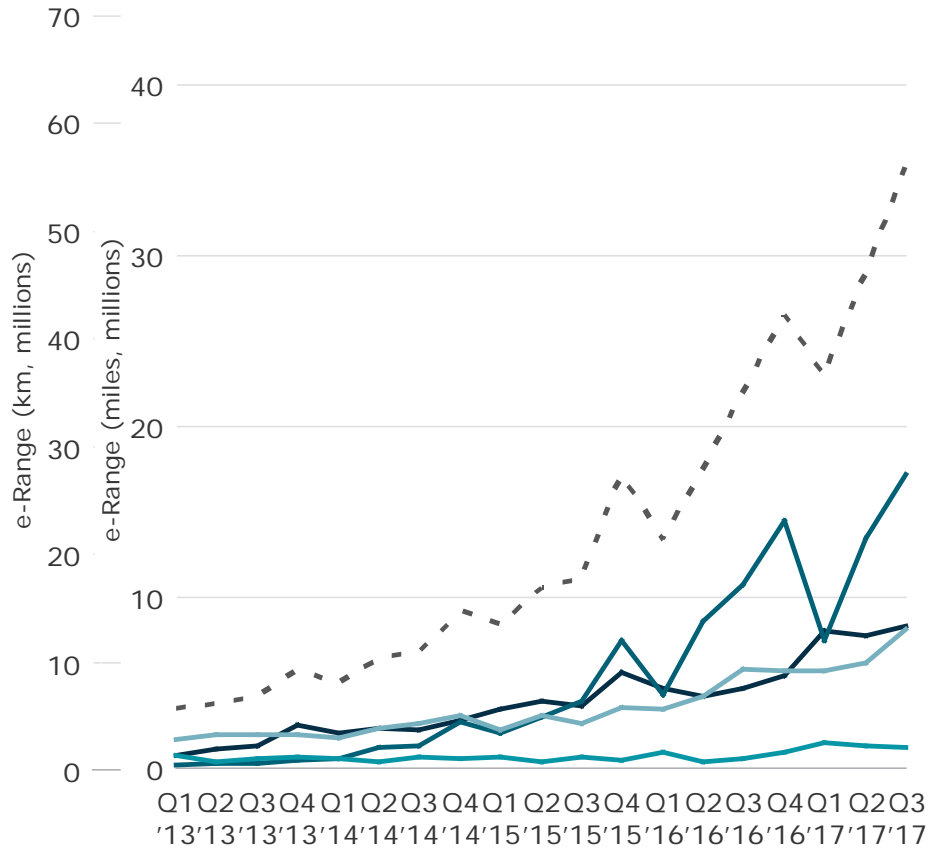
e-Range and ICE-equivalent share increased by a factor of ten resp. nine since Q1 '13 until Q3 '17; average electrical range went up by 30% only



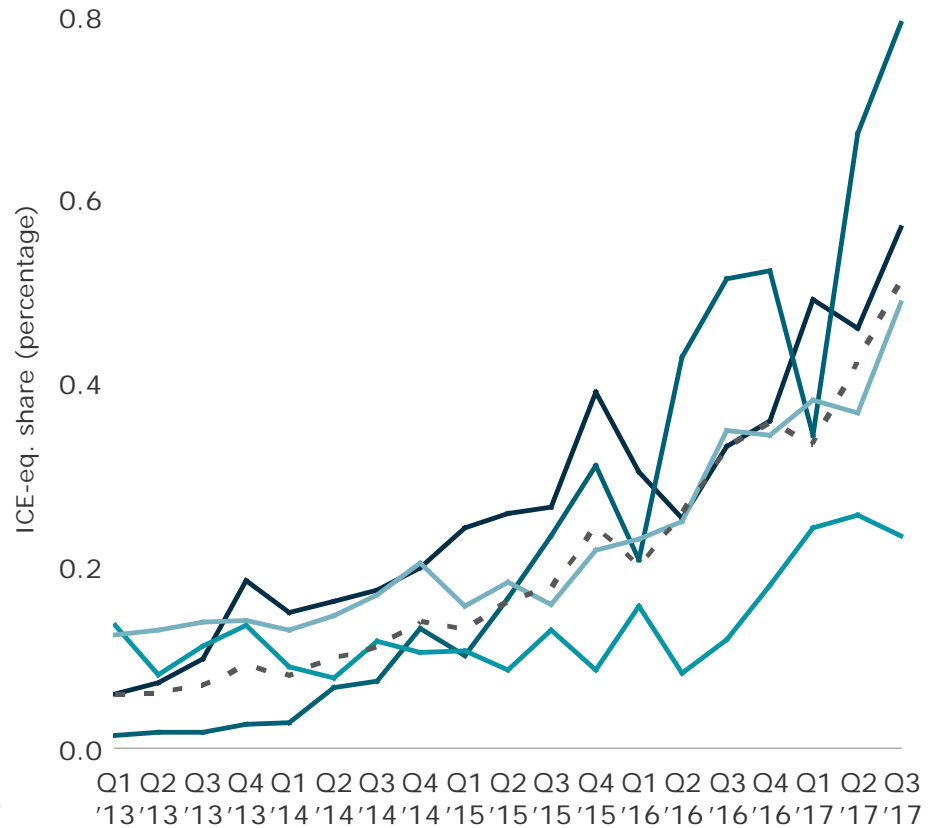
¹ Electric range/311miles (500km) defining the equivalent full ICE vehicle share
 Sources: IHS Markit, EV-volumes.com, Automaker responses, AlixPartners research

e-Range and ICE-equivalent share by region: China keeps on growing the most

e-Range: main regions by quarter (Q1 '13 to Q3 '17)



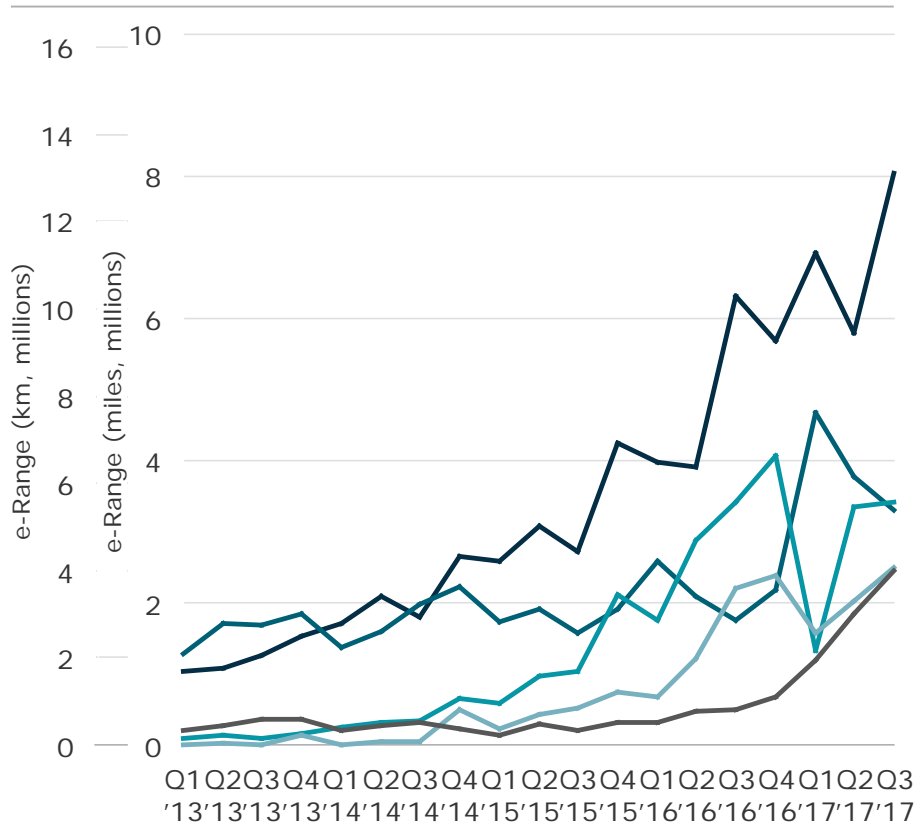
ICE-eq. share: main regions by quarter (Q1 '13 to Q3 '17)



Key: Europe Greater China Japan/Korea North America Global

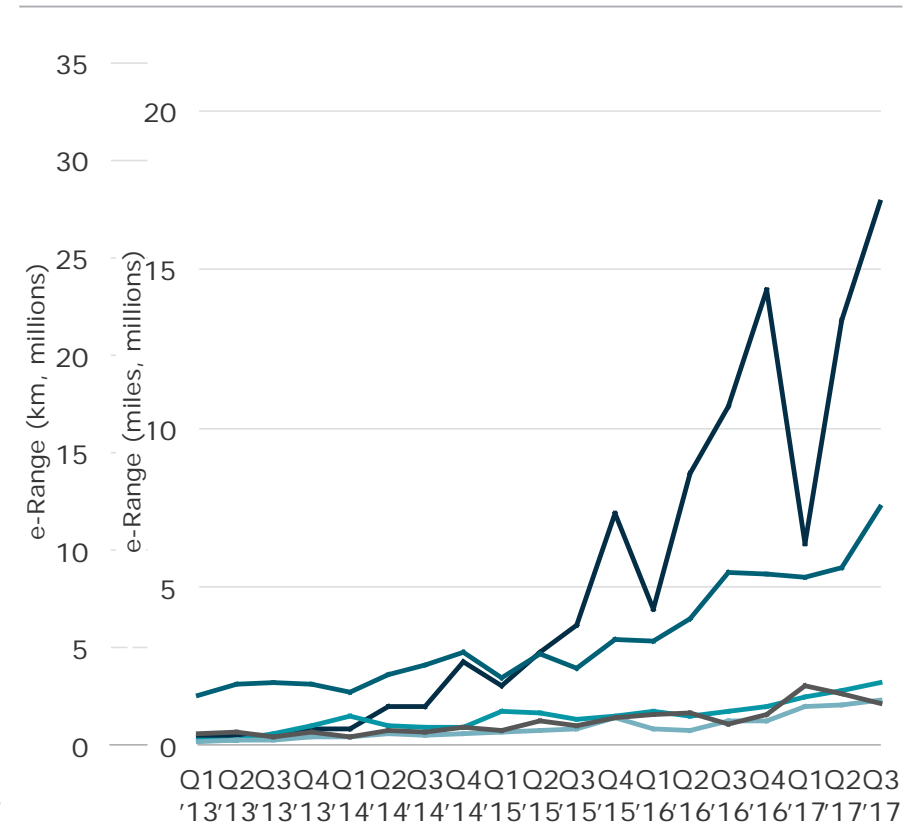
Tesla and Chinese still gaining ground with Renault-Nissan showing signs of slow down

e-Range: Top 5 OEMs by quarter (Q1 '13 to Q3 '17)



Key:
— Tesla — BYD — General Motors
— Renault/Nissan — BAIC

e-Range: Top 5 countries by quarter (Q1 '13 to Q3 '17)



Key:
— China — Norway — Germany
— United States — France

e-Range by country Q3 2017: China still leading by far, more than twice the US and more than the next 15 combined

e-Range by country: Q3 2017

Rank	Country Q3 '17	e-Range (miles, millions)	e-Range (km, millions)	Number EV sold
1	China	17.15	27.59	166,681
2	United States	7.49	12.05	53,989
3	Norway	1.97	3.18	16,185
4	Germany	1.39	2.24	14,356
5	France	1.32	2.12	9,292
6	United Kingdom	1.14	1.84	13,573
7	Japan	0.72	1.15	10,467
8	Canada	0.59	0.95	5,104
9	South Korea	0.51	0.82	4,559
10	Netherlands	0.48	0.77	2,365
11	Sweden	0.36	0.58	5,070
12	Austria	0.30	0.49	2,021
13	Switzerland	0.30	0.48	2,048
14	Spain	0.23	0.38	2,306
15	Belgium	0.21	0.33	3,475
16	Italy	0.12	0.19	1,286
17	Portugal	0.10	0.16	1,004
18	Australia	0.09	0.14	461
19	Iceland	0.07	0.12	1,039
20	Denmark	0.07	0.12	392

Rank	Country Q3 '17	e-Range (miles, millions)	e-Range (km, millions)	Number EV sold
21	Malaysia	0.05	0.08	1,957
22	India	0.05	0.08	622
23	Finland	0.05	0.07	796
24	Ireland	0.05	0.07	334
25	New Zealand	0.04	0.06	246
26	UAE	0.03	0.06	131
27	Poland	0.03	0.06	346
28	Hungary	0.03	0.05	277
29	Luxembourg	0.02	0.04	251
30	Czech Republic	0.02	0.03	178
31	Mexico	0.02	0.03	132
32	Slovenia	0.02	0.03	145
33	Ukraine	0.02	0.03	132
34	Jordan	0.02	0.02	62
35	Singapore	0.02	0.02	87
36	Romania	0.01	0.02	103
37	Taiwan	0.01	0.02	56
38	Slovakia	0.01	0.01	94
39	Hong Kong	0.01	0.01	65
40	South Africa	0.01	0.01	56

e-Range by country Q3 2017: China still leading by far, more than twice the US and more than the next 15 combined (cont'd)

e-Range by country: Q3 2017

Rank	Country Q3 '17	e-Range (miles, millions)	e-Range (km, millions)	Number EV sold
41	Israel	0.01	0.01	68
42	Colombia	0.00	0.01	44
43	Cyprus	0.00	0.01	41
44	Brazil	0.00	0.01	24
45	Lithuania	0.00	0.01	24
46	Russia	0.00	0.01	19
47	Turkey	0.00	0.01	19
48	Latvia	0.00	0.00	19
49	Indonesia	0.00	0.00	17
50	Greece	0.00	0.00	48
51	Serbia	0.00	0.00	16
52	Bulgaria	0.00	0.00	26
53	Chile	0.00	0.00	11
54	Ecuador	0.00	0.00	17
55	Croatia	0.00	0.00	2
56	Estonia	0.00	0.00	10
57	Morocco	0.00	0.00	3
58	Malta	0.00	0.00	3
59	Costa Rica	0.00	0.00	7
60	Oman	0.00	0.00	14

Rank	Country Q3 '17	e-Range (miles, millions)	e-Range (km, millions)	Number EV sold
61	Thailand	0.00	0.00	12
62	Macedonia	0.00	0.00	5
63	Uruguay	0.00	0.00	5
64	Panama	0.00	0.00	4
65	Saudi Arabia	0.00	0.00	9
66	Qatar	0.00	0.00	2
67	Egypt	0.00	0.00	2
68	Peru	0.00	0.00	2
69	Bahrain	0.00	0.00	1
70	Bermuda	-	-	0
71	Puerto Rico	-	-	0
	Global	35.16	56.59	322,217

ICE-equivalent share by country Q3 2017: China share going up, but smaller European countries with high buying power still ahead

ICE-eq. share by country: Q3 2017

Rank	Country Q3 '17	ICE-eq. share (%)	Number EV sold	Rank	Country Q3 '17	ICE-eq. share (%)	Number EV sold	Rank	Country Q3 '17	ICE-eq. share (%)	Number EV sold
1	Norway	13.22	16,185	26	Singapore	0.19	87	51	Uruguay	0.01	5
2	Iceland	4.67	1,039	27	Latvia	0.19	19	52	Turkey	0.00	19
3	Netherlands	1.35	2,365	28	Japan	0.18	10,467	53	Morocco	0.00	3
4	Switzerland	1.21	2,048	29	UAE	0.16	131	54	Chile	0.00	11
5	Sweden	1.19	5,070	30	Lithuania	0.15	24	55	Oman	0.00	14
6	Austria	1.03	2,021	31	Malaysia	0.12	1,957	56	Russia	0.00	19
7	France	0.82	9,292	32	Romania	0.12	103	57	Brazil	0.00	24
8	China	0.81	166,681	33	Slovakia	0.12	94	58	Qatar	0.00	2
9	Portugal	0.59	1,004	34	Czech Republic	0.10	178	59	Bahrain	0.00	1
10	Luxembourg	0.56	251	35	Australia	0.10	461	60	Saudi Arabia	0.00	9
11	United States	0.55	53,989	36	Serbia	0.09	16	61	Egypt	0.00	2
12	Belgium	0.51	3,475	37	Poland	0.09	346	62	Thailand	0.00	12
13	Germany	0.50	14,356	38	Italy	0.09	1,286	63	Indonesia	0.00	17
14	United Kingdom	0.48	13,573	39	Bulgaria	0.06	26	64	Peru	0.00	2
15	Finland	0.47	796	40	Macedonia	0.05	5	65	Costa Rica	0.00	7
16	Denmark	0.44	392	41	Greece	0.04	48	66	Cyprus	0.00	41
17	South Korea	0.37	4,559	42	Taiwan	0.04	56	67	Jordan	0.00	62
18	Canada	0.34	5,104	43	Israel	0.02	68	68	Malta	0.00	3
19	Slovenia	0.34	145	44	Estonia	0.02	10	69	Panama	0.00	4
20	Ireland	0.33	334	45	Colombia	0.02	44	70	Bermuda	-	0
21	Hungary	0.33	277	46	Croatia	0.02	2	71	Puerto Rico	-	0
22	New Zealand	0.30	246	47	South Africa	0.02	56		Global	0.51	322,217
23	Ukraine	0.27	132	48	India	0.02	622				
24	Spain	0.24	2,306	49	Ecuador	0.01	17				
25	Hong Kong	0.22	65	50	Mexico	0.01	132				

e-Range by automaker Q3 2017: Tesla more than double its first follower BYD

e-Range by automaker: Q3 2017

Rank	OEM Q3 '17	e-Range (miles, millions)	e-Range (km, millions)	Number EV sold
1	Tesla	8.05	12.95	28,897
2	BYD	3.41	5.49	35,316
3	Renault/Nissan	3.30	5.31	19,942
4	BAIC	2.50	4.03	23,565
5	General Motors	2.46	3.95	16,516
6	Geely	2.05	3.29	20,277
7	BMW	1.49	2.39	26,128
8	Volkswagen	1.35	2.18	19,582
9	Zhidou	1.34	2.15	13,898
10	Hyundai	1.32	2.13	13,074
11	Jianghuai	1.23	1.98	8,095
12	Changan	1.19	1.91	9,800
13	Chery	0.83	1.34	9,118
14	Toyota	0.69	1.11	12,476
15	Zotye	0.61	0.98	6,500
16	Jiangling	0.50	0.81	6,787
17	SAIC	0.44	0.71	13,407
18	Daimler	0.42	0.67	9,904
19	Dongfeng	0.40	0.64	4,061
20	Hawtai	0.30	0.48	3,445

Rank	OEM Q3 '17	e-Range (miles, millions)	e-Range (km, millions)	Number EV sold
21	Hainan Automobile	0.22	0.35	1,584
22	Mitsubishi	0.22	0.35	6,113
23	Ford	0.18	0.29	5,754
24	Lifan	0.16	0.25	1,212
25	FCA	0.14	0.22	2,397
26	Guangzhou Auto	0.13	0.21	2,173
27	PSA	0.10	0.17	1,101
28	Honda	0.07	0.11	258
29	Mahindra & Mahindra	0.05	0.08	620
30	Sichuan Yema	0.02	0.04	152
31	Soueast	0.00	0.00	5
32	Other	–	–	53
Global		35.16	56.59	322,217

ICE-equivalent share of OEMs: traditional OEMs falling behind in ranking starting at rank 16 and

ICE-eq. share by automaker: Q3 2017

Rank	OEM Q3 '17	ICE-eq. share (%)	Number EV sold	Average range (miles)
1	Tesla	89.65	28,897	279
2	Zhidou	31.00	13,898	96
3	BYD	12.44	35,316	97
4	BAIC	4.27	23,565	106
5	Hawtai	3.68	3,445	86
6	Hainan Automobile	3.20	1,584	139
7	Zotye	2.68	6,500	94
8	Chery	2.53	9,118	91
9	Jianghuai	1.83	8,095	152
10	Geely	1.52	20,277	101
11	Changan	1.35	9,800	121
12	Jiangling	1.14	6,787	74
13	Sichuan Yema	1.12	152	155
14	Lifan	1.10	1,212	129
15	SAIC	0.92	13,407	33
16	BMW	0.81	26,128	57
17	Dongfeng	0.63	4,061	98
18	Renault/Nissan	0.51	19,942	166
19	General Motors	0.37	16,516	149
20	Mitsubishi	0.32	6,113	36

Rank	OEM Q3 '17	ICE-eq. share (%)	Number EV sold	Average range (miles)
21	Guangzhou Auto	0.28	2,173	60
22	Hyundai	0.25	13,074	101
23	Daimler	0.20	9,904	42
24	Volkswagen	0.17	19,582	69
25	Mahindra & Mahindra	0.11	620	78
26	Toyota	0.09	12,476	55
27	PSA	0.06	1,101	94
28	FCA	0.04	2,397	58
29	Ford	0.04	5,754	32
30	Honda	0.02	258	264
31	Soueast	0.00	5	112
32	Other	-	53	-
Global		0.51	322,217	109

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when it really
matters