ICRA
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INDIAN TWO-WHEELER INDUSTRY

E-2Ws have had limited penetration despite sizeable subsidy outlay under FAME-II – A study

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SPECIAL COMMENT

Electric two-wheeler registered under FAME-II since April 1, 2019 constituted mere 2% of the targeted sales of 10,00,000 as on September 30, 2020

Multi-level policy support remains imperative for faster EV adoption, especially after the severe disruption caused by the Covid-19 pandemic

- The second phase of Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME), the flagship scheme of the Government of India to push faster electric vehicle (EV) adoption, crossed the halfway mark of its three-year tenure (FY2020-FY2022), on September 30, 2020. However, it managed to achieve only 2% of its target of covering ten lakh electric two-wheeler (e-2W) sales during the period.
- Among all segments of the automobile market, e-2Ws were expected to witness faster penetration, given the favourable economics and limited reliance on a widespread charging infrastructure. However, e-2W sales vis-à-vis targets set under FAME II have been tepid so far, with e-2W constituting less than 1% of total two-wheelers (2W) sold in FY2020 in India.
- ICRA research believes that the stringent eligibility criteria set for claiming the subsidy (e.g. minimum localisation requirement), exclusion of lead-acid based e-2W for subsidy and lack of consumer awareness (regarding Government subsidy) and acceptability (led by lack of product knowledge, after-sales service concerns) have been dominant reasons for the scheme's lacklustre performance.
- To understand the ground realities regarding the current challenges and possible drivers for faster e-2W penetration, ICRA conducted a survey of 16 e-2W dealerships, spread across the country, in November 2020.

Key findings of ICRA's survey indicate

- Nearly 50% of the dealers mentioned that e-2W sales had declined post FAME-II, as the number of models eligible for subsidy under FAME II have shrunk (indicating the impact of stringent qualifying criteria).
- A third of the walk-in customers lack awareness about the financial incentives offered by the Government on e-2W, while the rest also have limited understanding.
- Nearly 60% of the customers are opting for lead-acid based e-2W, because of lower upfront costs. These are not eligible under FAME-II
- High upfront cost (referring to Li-ion e-2W) and concerns about after resale values, after-sale services are key reason for not considering e-2Ws. Nearly 80% of the dealers also believed that more financing options could drive faster adoption.
- Around 50% of the respondents said interest in e-2W increased after announcement of the EV policies by select states, which sweetened the deal in select markets, like Delhi.
- Overall response indicates that most dealers (80%) expect flattish to moderate growth in e-2W sales in FY2021.

While the pragmatism behind the FAME-II policy target of 10 lakh e-2W by FY2022 could be debated at this juncture, the Covid-19 pandemic remains a more crucial and unpredictable variable which could alter all the best laid out plans. Although the increased preference for personal mobility, to ensure social distancing, bodes well for 2W sales in the near-term, the demand for e-2Ws could be impaired as consumers face income uncertainties. Nonetheless, the Government's thrust on adoption of EVs, increasing awareness towards public health and clean energy continue to favour EV adoption in the long run. Multi-level policy support (demand incentives) and policy push (firm transition date) will be imperative for the same.

KEY TAKEAWAY | FAME-II SCHEME FAILS TO ENCOURAGE DEMAND FOR E-2WS WITH ONLY 2% OF SALES TARGET ACHIEVED TILL SEPT 2020

- The electric 2Ws constitute 95% of the total EVs on road in India. Between FY2016-FY2020, the e-2W sales grew at a CAGR of 66%, albeit on a low base.
- The total e-2W sold in India between FY2016-FY2019 were 2.23 lakh units. This constituted only 0.3% of the total 2W sold in the same period (viz. 75.4 lakhs). During this four-year period, FAME-I subsidy was availed by 1.72 lakh (77% of total) e-2W buyers.
- In FY2020, FAME-II was announced for a period of 3 years. While the e-2W sales reported a 21% YoY growth to 1.5 lakh units in FY2020 (first year of scheme) the number of e-2Ws which availed FAME-II subsidy plummeted.
- ICRA research identifies possible reasons:
  - **Stringent eligibility criteria for claiming subsidy:**
    - ✓ Only e-2W with advanced (i.e. Lithium-ion battery based) are eligible, resulting in all lead-acid battery-based e-2W sales being excluded from claiming any demand incentives under FAME. Because of their lower upfront cost and other concessions (no requirement for registration etc.), the lead-acid based e-2W currently constitutes a higher proportion of total sales.
    - ✓ Requirement for meeting a minimum 50% localised content criterion in a phased manner – Li-ion battery accounts for 40-50% of the overall cost of the EV and is the most expensive component in EVs. Due to lack of adequate domestic supply, most of the OEMs are importing the same which could be a possible reason for their ineligibility for claiming the subsidy
  - **Lack of awareness amongst consumers regarding e-2W features and available demand incentives:**
    - ✓ Initiatives from the OEMs and the Government, geared towards addressing consumer anxiety regarding range of e-2W, charging infrastructure requirement, after sale service, upfront demand incentives, benefits of e-2W in terms of total cost of ownership (TCO) etc. have been lacking.
  - **Limited financing options (relative to conventional petrol-based 2W)**

Exhibit 1: FAME-II target Vs achievement across automobile segments

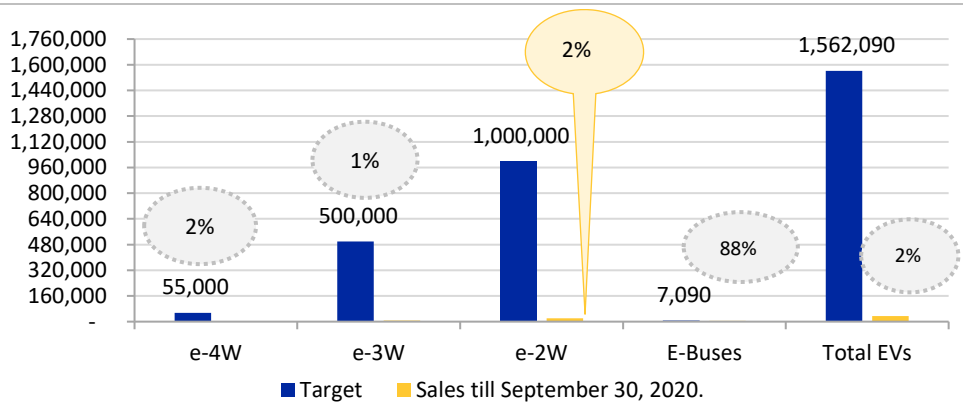
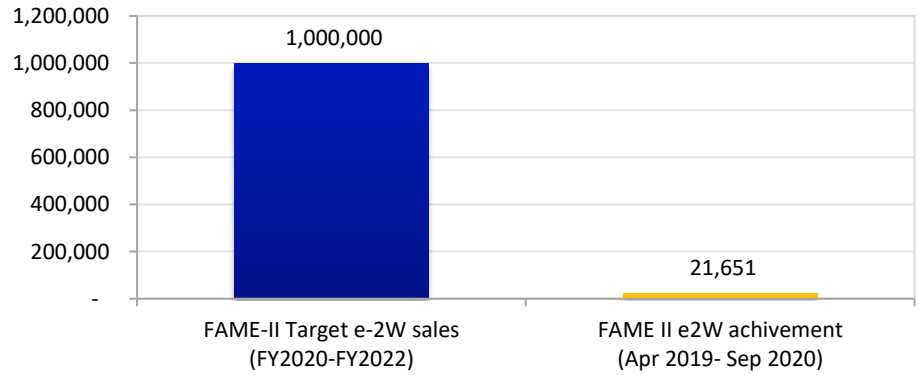


Exhibit 2: Data of e-2W sales under FAME-II - target Vs achievement



Source: *FAME India Scheme Phase-II web portal, Department of Heavy Industry, ICRA research; Note- For E-Buses the achievement represents the number of buses sanctioned by DHI under the FAME II Scheme to various States*

KEY TAKEAWAY | RESTRICTIVE CRITERIA SEES ONLY SELECTED E-2W MODELS ELIGIBLE FOR SUBSIDY UNDER FAME-II

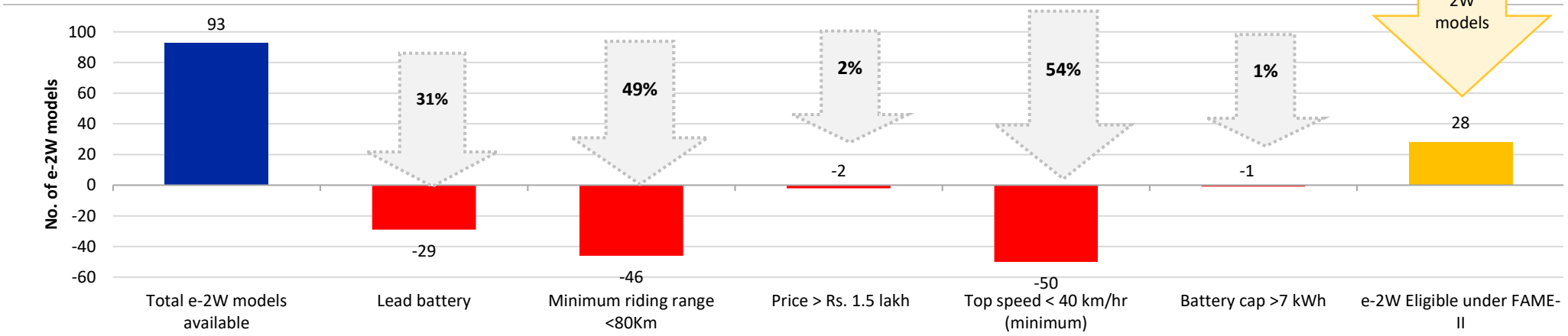
Exhibit 3: Eligibility criteria for demand incentives under FAME-I and FAME-II

Parameter stipulated	FAME I	FAME II	Comments
Battery Type	Both Conventional Battery- Lead Acid and Advance Battery- Lithium-ion battery	Only Advance - Lithium-ion battery	Restrictive
Minimum maximum Speed	Not Exceeding 25 km/h	40 km/h	Restrictive
Minimum range	10-55 Km	80 Km	Restrictive
Approximate demand Incentive	For Lead Battery- Rs. 1,800 to Rs. 12,000. For Advance Battery- Rs. 3,600 to Rs. 29,000.	Capped at Rs. 20,000 @ Rs. 10,000 per kWh	Maximum incentive lower than FAME 1 level
Approximate Battery Capacity	Low Power models: < 250 Watts High Power models: >250 Watts	2 Kwh	-
Maximum Electric Energy Consumption (kWh/100 km)	Low Power models: < 5 High Power models: < 8	Not exceeding 7	Positive
Minimum content localization	Nil	50%	Restrictive
Maximum Ex-factory price	-	Rs. 1.5 lakhs	-

70% of the total e-2W models available in the market today are excluded from claiming FAME-II demand incentive due to the stipulated eligibility criteria

Source: *FAME Scheme documents; DHI*

Exhibit 4: Data on e-2W models excluded from FAME-II basis eligibility parameters



Source: *ICRA research*

KEY TAKEAWAY| UPFRONT PRICE DIFFERENTIAL WITH CONVENTIONAL 2W A DETERRENT, DESPITE E-2W'S SUPERIORITY IN OVERALL COST OF OWNERSHIP

Exhibit 5: Petrol Vs Electric 2W – Comparison of upfront cost

Displacement category	Petrol	Lead-acid Battery	Li-ion Battery	Li-ion Battery	Savings in e-2W vis-a-vis petrol 2W		
Variant	**110cc***	**Basic Model**	**Basic Model***	**Premium^**	**Lead-battery model**	**Li-ion Basic Model**	**Li-ion Premium**
Ex-showroom Price	65,400	40,000-45,000	79,000	134,000			
Less FAME-II Subsidy	-	-	17,000	26,730			
Ex-showroom after Subsidy	65,400	40,000-45,000	62,000	1,07,270	20,000 to 25,500	3,400	(41,870)
Registration Charges + Other	6,750	Nil	6,450	1,000			
Insurance	6,000	2,800	3,200	5,800			
On-road price	**78,150**	**42,800-47,800**	**71,650**	**114,070**	30,000 to 35,500	6,500	(35,920)

Source: *ICRA research; Figures rounded off; *Delhi Prices, ^ Bangalore Prices and rates*

Exhibit 6: Petrol Vs Electric 2W – Comparison of Ownership cost

	Petrol	Lead-battery	Li-ion Battery	Li-ion Battery	
	110cc	**Basic Model**	**Basic Model**	**Premium**	
On Road Price (Delhi)	78,150	**42,800-47,800**	**71,650**	**1,14,070**	
Fuel consumed per day (50-55 km)	1 liter	1.5 units	1.5 units of electricity		Derived basis the single charge energy requirement as per battery size of an e-2W
Cost of fuel per day	82	15	15	15	Over 5x savings in fuel cost
Cost of fuel for 5 years	111,930	20,455	20,475	20,475	
Maintenance cost for 5 years	25,000	10,000	10,000	10,000	2.5x lower maintenance cost
Battery replacement cost	-	18,000	27,650	46,900	35-40% of ex-showroom price (assumption)
Vehicle ownership cost over 5 years	**2,15,100**	91,300-96,300	129,775	191,445	
Savings over 5 year (Rs.)		**1,18,800-1,23,800**	**85,325**	**23,655**	
CO^2 reduction over 5 years (in Metric Tons)		1.9	1.9	1.9	

Source: *ICRA research; Figures rounded off; *Delhi Prices, ^ Bangalore Prices and rates*
Base data/assumptions for ownership cost comparison: Average 2W ownership period = 5 years; Mileage over vehicle life = 75,000 km; Unit cost of electricity = Rs. 10/-; All prices are average/estimated prices as per the charges in the Delhi.

Significant upfront cost savings in Lead-acid based e-2W attract the price sensitive Indian consumers

A considerable increase (>30%) in ICE ownership cost over past 2 years has reduced the upfront cost differential with Li-ion based e-2W

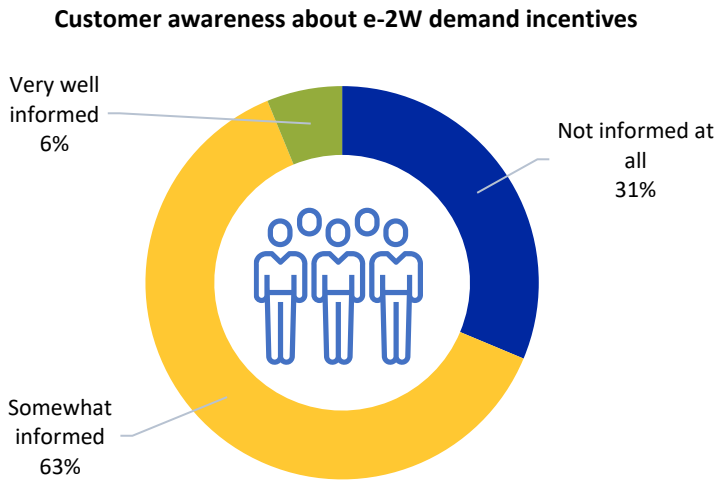
Consumers lack awareness that running costs of e-2Ws yield significant savings over ownership period

KEY TAKEAWAY I INCREASED CUSTOMER AWARENESS ABOUT THE DEMAND-INCENTIVES OFFERED UNDER FAME-II COULD DRIVE E-2W DEMAND

Insights from ICRA's Survey of e-2W dealers

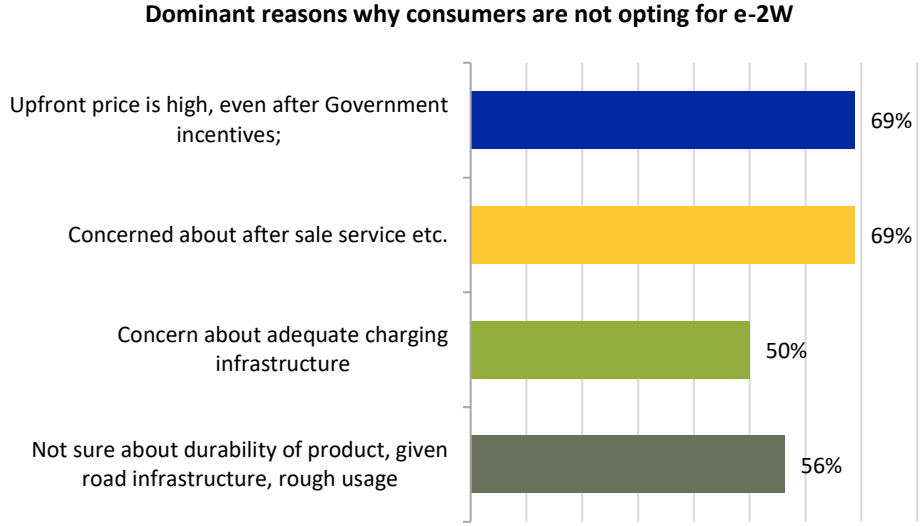
- Over 80% dealers in the survey indicated that dominant e-2W customers are those who are looking for a second 2W for the household, mainly for kids and women. With schools and colleges shut because of the pandemic and limited non-essential movement, it stands to reason then, that purchase of a second vehicle has been deferred in the current fiscal.
- 40-50% of the total enquiries are received online now. The conversion ratio (i.e. enquiry resulting in sale) is low and ranges between 0-10% (as reported by nearly 90% of the respondents).
- Nearly a third of the walk-in customers are not at all aware of the demand incentives available under FAME-II on various e-2Ws. Apart from higher upfront cost of an e-2W, the potential customers are also concerned about their durability and after sales services; the Government and the OEMs need to step up and invest in creating customer awareness towards EV technology, tax benefits, financing options etc.

Exhibit 7: ICRA survey finding on consumer awareness



Source: *ICRA research*

Exhibit 8: ICRA survey finding on consumer behavior regarding e-2W



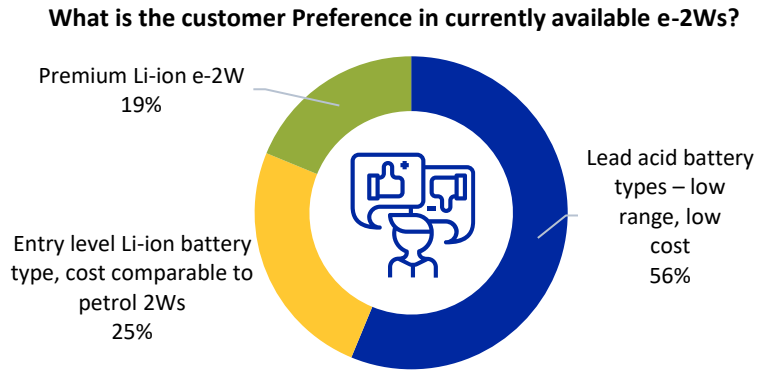
Source: *ICRA research*

KEY TAKEAWAY | CUSTOMERS CONTINUE TO PREFER LEAD-ACID BASED E-2W

- Most consumers continue to prefer low cost-low range lead-acid battery powered e-2Ws even when FAME-II demand incentives are available only for advanced battery based (i.e. lithium-ion (Li-ion) e-2Ws
- Low-speed lead-battery based e-2W are exempted from RTO registration, driving licence and helmet requirements; this adds to the appeal of these low-cost e-2Ws
- Lead-acid batteries face several quality issues, have limited life, and lack proper end of life recycling facilities (which is not environment-friendly); leading to the Government's decision to dis-incentivise the same.

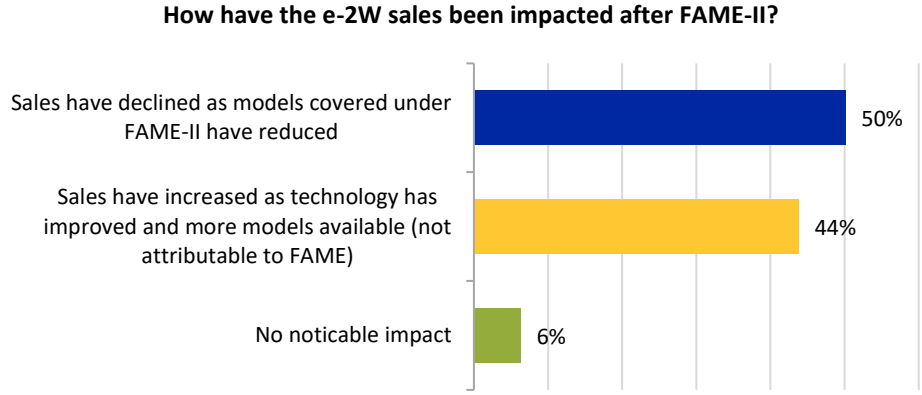
- Most of the e-2W dealers surveyed by ICRA indicated that sales under FAME-II have been negatively impacted as eligibility criteria became more restrictive (advanced batteries only)
- However, 44% respondents believed that improvement in battery technology and presence of more participants (and models) have helped in expanding the e-2W market. This is a promising trend.

Exhibit 9: ICRA survey finding on consumer preference in e-2W



Source: *ICRA research*

Exhibit 10: ICRA survey finding on FAME-II impact on e-2W



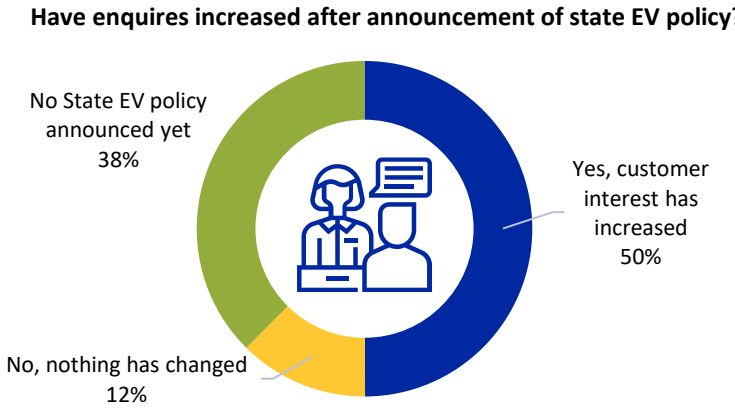
Source: *ICRA research*

KEY TAKEAWAY | STATE EV POLICIES NEED TO AUGMENT FAME-II; IMPROVING FINANCING AVAILABILITY COULD HELP IN FASTER ADOPTION

- As indicated earlier, demand incentives are currently crucial to sway customers to e-2Ws and hence, the financial incentives under the state EV policies provide incremental impetus for faster EV adoption
- Majority of the dealers surveyed reported increased customer enquiries after the announcement of the state EV policies; however, due to the pandemic, a visible impact on sales remains to be seen
- Most of the state EV policies have focused on demand creation through reduction in upfront cost of ownership by offering a combination of subsidies, registration tax and road tax waivers etc. and clear transition dates for e-2W migration for delivery services/ e-commerce players etc.

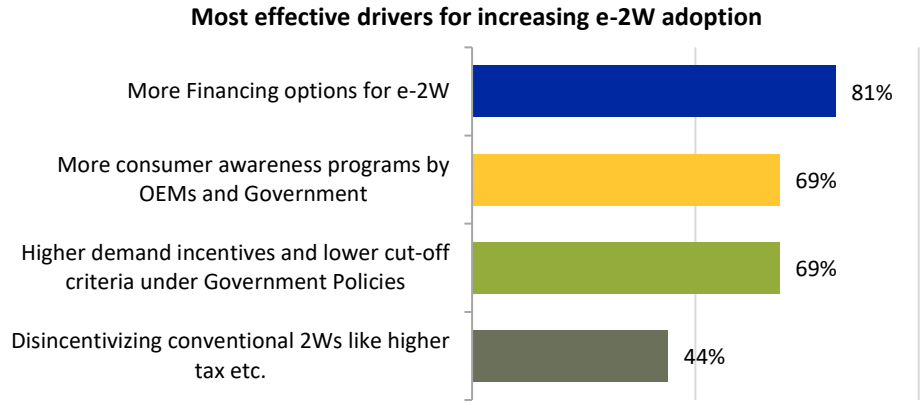
- Nearly 80% of the dealers surveyed reported that 20-30% of their e-2W sales are currently financed; this is lower than 40-50% financing enjoyed by conventional 2Ws in India
- Most of the dealers surveyed conveyed that greater financing avenues and rise in consumer awareness could propel faster adoption

Exhibit 11: ICRA survey finding on impact of state EV policy



Source: *ICRA research*

Exhibit 12: ICRA survey finding on drivers for e-2W adoption

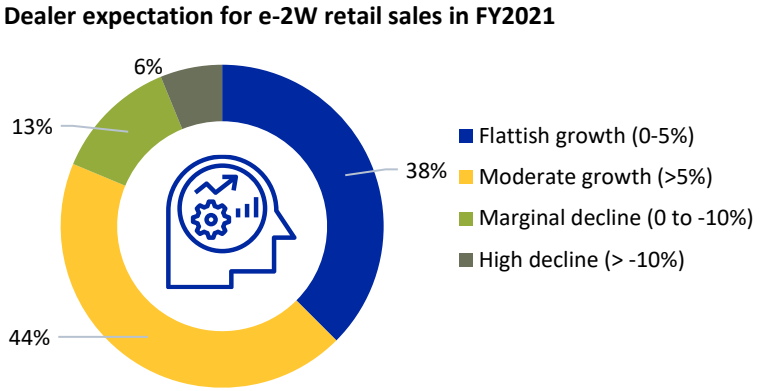


Source: *ICRA research*

KEY TAKEAWAY | DESPITE THE PANDEMIC E-2W DEALERS EXPECT MARGINAL GROWTH IN FY2021, EVEN AS 2W INDUSTRY OUTLOOK REMAINS TEPID

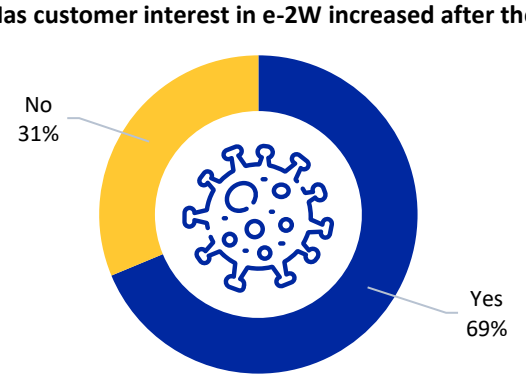
- While interest in e-2W amid the pandemic has increased, conversion into sales remains a monitorable. The e-2W dealers expect a flattish or marginal growth on a YoY basis in FY2021, albeit on a low base.
- In H1 FY2021, the high-speed e-2W reported a 25% YoY decline, primarily a result of the pandemic-led lockdowns. However, the sales data released by SMEV for the month of September 2020, which reported a 72% YoY increase in sales of high-speed e-2W, augments the positive expectations of the dealers.
- The industry is banking on pent-up demand from H1 FY2021, to get realised in the festive season. Announcement of EV policies by states and Union Territories like – Delhi, Telangana, and the Central Government's decision to allow sale of EVs without battery, could push growth in the near-to-medium term.
- ICRA expects 16-18% YoY contraction in wholesale 2W volumes in FY2021, amid an evolving pandemic situation, persisting health concerns and economic uncertainties. In H1 FY2021, the actual 2W wholesale sales volumes were 38% lower on a YoY basis.

Exhibit 13: ICRA survey finding on e-2W demand in FY2021



Source: *ICRA research*

Exhibit 14: ICRA survey finding on pandemic impact on e-2W sales



Source: *ICRA research*

ANNEXURE-I | FAME - THE NATIONAL LEVEL POLICY SUPPORT FOR ELECTRIFICATION OF TWO-WHEELERS IN INDIA

Significantly higher outlay in second phase of FAME vis-à-vis Phase I; however, focus shifts to pure EVs as against Hybrids and lead-acid based e-2W

- While India is the largest 2W market in the world (by volumes), the EV penetration in the segment has remained marginal. On-road EVs in India remains marginal at around 0.5 million.
- To facilitate EV adoption, the Indian Government has introduced various programmes over the years. At the centre of this is the National Electric Mobility Mission Plan 2020 (NEMMP 2020), introduced in January 2013.
- As part of the NEMMP 2020, the FAME scheme was launched by the Central Government in April 2015. Phase II of the scheme became effective from April 1, 2019 for three years.
- The FAME Scheme has been implemented by the Department of Heavy Industries (DHI). It targets demand generation by offering subsidies as incentives to reduce the capital investment associated with EVs.

Exhibit 15: FAME 1.0 Vs FAME 2.0 - Major changes in the scheme

Category	FAME – 1.0	FAME – 2.0	Likely impact Positive/Negative
Implementation	Phase 1 initially approved for 2 years, commencing from April 1, 2015. The Scheme was extended till March 31, 2019.	3 years, starting April 1, 2019	
Scheme Outlay	Rs. 895 Crore	Rs. 10,000 Crore; (including balance under phase-I of Rs. 366 crore)	Positive
Demand Incentive	Rs. 495 Crore (55% of total outlay)	Rs. 8,596 Crore (86% of total outlay)	Positive
Charging Infrastructure	Rs. 30 crore	Rs. 1,000 crore	
No. of models covered	130 Models (2W, 3W & PV) of which 86 models are two wheelers	75 Models (2W, 3W & PV) out of which 28 models are two wheelers (as of Nov 2020)	Negative
Subsidy structure	Fixed subsidy based on vehicle category and technology used	Subsidy dependent on battery capacity, with a cap basis vehicle cost; minimum localisation mandated	Negative (restrictive in near-term)
Focus Areas	Technology Development, Demand Creation, Pilot Projects, and Charging Infrastructure.	Demand Incentive & Charging Infrastructure.	
Other criteria	--	(i) Vehicle should be manufactured in India and need to meet a minimum localized content criterion in a phased manner; (ii) Vehicle should be fitted with monitoring devices to know the mileage of vehicles to determine fuel savings	

Source: FAME scheme document, Department of Heavy Industries, ICRA research

ANNEXURE-II | SUMMARIZED STATE EV POLICIES FOR 2W INDUSTRY

Significantly higher outlay in second phase of FAME vis-à-vis Phase I; however, focus shifts to pure EVs as against Hybrids and lead-acid based e-2W

- Over 10 states have so far announced (or drafted) EV policies; six out of the same are among the top 10-2W markets in India.
- All policies offer exemption from registration and road-tax for e-2Ws help bring parity in terms of on-road prices. For conventional 2Ws, these charges vary between 8-20% (of the invoice price) across the following nine states.
- Despite the efficacy of demand incentives in promoting EV adoption, incremental demand incentives, over and above FAME-II, are being offered (or are proposed) only in three of the nine states (and Union Territories). These range from Rs. 5,000 up to Rs. 27,000.
- Firm deadline for EV transition and scrappage incentive are few of the features missing from most of the state EV policies.

Exhibit 16: State EV policy snapshot

Demand stimulating incentives in select State EV policies	Exemption or relaxation in Registration charges and road tax	Upfront financial incentive/subsidy for e-2W customer	Scrappage incentive	Transition deadline to e-2W for e-commerce or delivery companies
Delhi 3-year policy till 2022	Yes	Yes	Yes	Yes
Telangana 10-year policy till 2030	Yes	--	--	--
Maharashtra 5-year policy till 2023	Yes	Yes	--	--
Tamil Nadu 10-year policy till 2029	Yes	--	--	--
Karnataka 5-year policy till 2022	Yes	--	--	Yes
Uttar Pradesh 5-year policy till 2024	Yes	--	--	Yes
Andhra Pradesh 5-year policy till 2023	Yes	--	--	Yes
Kerala 5-year policy till 2022	Yes	--	--	--
Madhya Pradesh 5-year policy till 2024	Yes	--	--	--

Source: ICRA research; State EV policy documents

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