

The Mexican standoff holding up India's EV localisation ambitions

The government is dead serious about going 100% electric. A traditional auto industry is unable to shake its inertia. Meanwhile, younger EV start-ups are revving up to get ahead

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Four policy decisions and one budget announcement later, India's ready to take off in a global race towards electrification

But constant policy shifts have left the auto industry unsure about investments in EVs. This has hampered local research and production

Policy has doubled down. The government wants EVs to have 50% localised components to be eligible for demand subsidies

The political maelstrom has split the industry down the middle. It's a classic stand-off between the old guard and the new blood. Who's going more local?



On 15 May, a sea of black suits parted to let Tarun Mehta reach the stage. Mehta, the wunderkind of electric mobility, is the co-founder of Ather Energy, a manufacturer of high-end electric scooters. He's dressed in blue jeans, a burst of colour among the monochrome suits. Sitting squarely in the middle, Mehta's found his pulpit at an industry conference of auto manufacturers and component makers being held in Delhi. His message, to an ageing auto industry turning electric, is one of agility in the face of dramatic change:

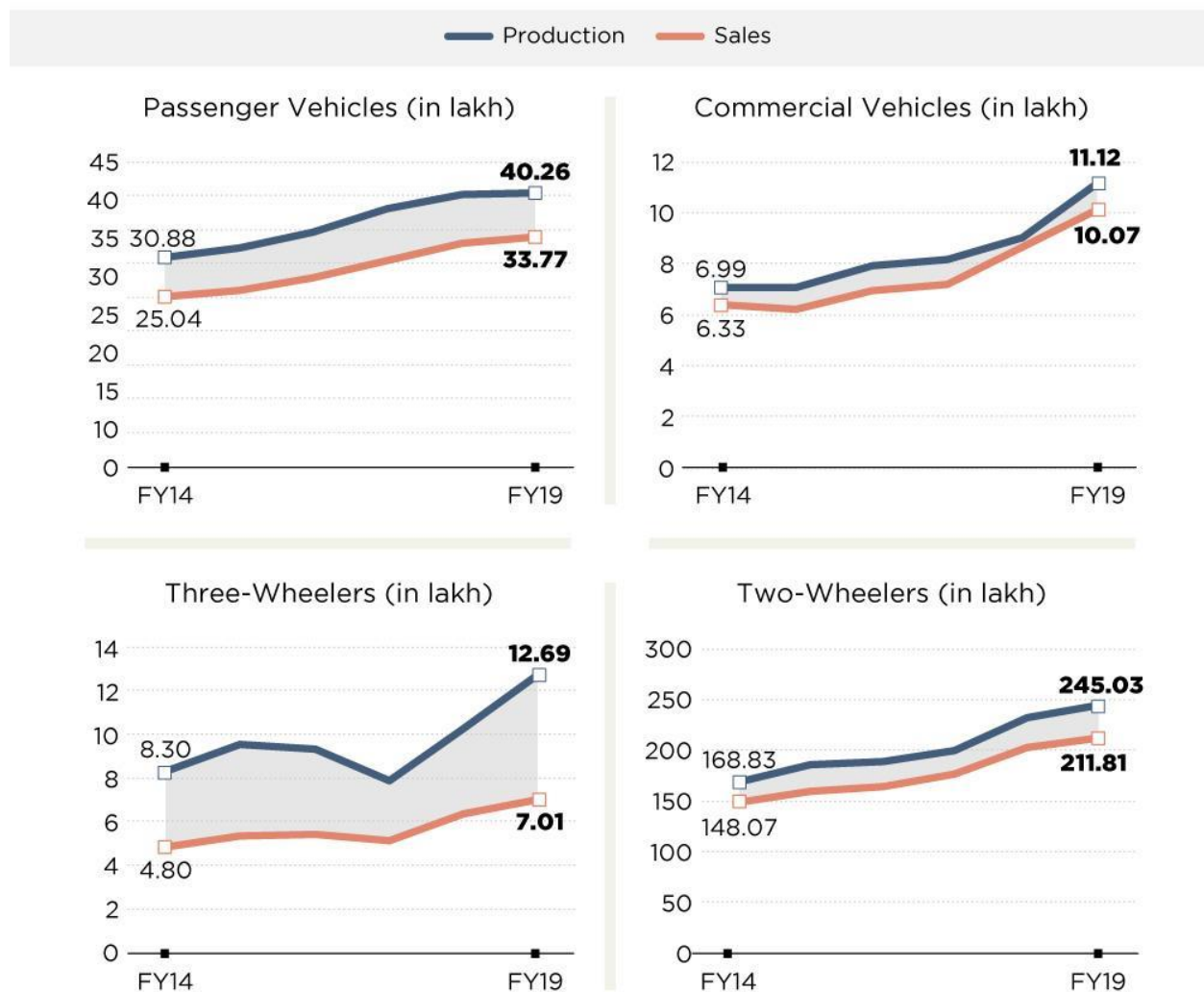
“The current tech for an EV (electric vehicle) will be obsolete in the next 18 months. That’s how quickly it’s changing. Think modular. Don’t marry long-term investment with only one kind of technology,” he says.

The audience of suits shake their heads and mumble in unison, “This is not how things work in the auto industry.”

It is a fortuitous snapshot of a 67-year-old auto industry in complete flux. An industry that is tottering in the face of an 18-year low in sales across categories of private and commercial vehicles. Domestic car sales were down by almost 26% in May 2018. But this unprecedented slowdown is merely the backdrop to a much larger battle.

SPEED BREAKER

The gap between production and sales of IC-engine vehicles has the auto industry worried



On one end, new blood in the EV sector threatens to wipe out the ageing internal combustion engine (IC-engine). On the other, trigger-happy, impatient government machinery has put forth stringent policy mandates to hasten the auto industry's introduction of EVs into the mass market.

None of this augurs well for OEMs (original equipment manufacturers) and component manufacturers (colloquially called tier-1, tier-2 and tier-3 companies). These businesses have already committed huge investments towards upgrading their IC-engines to match Bharat Stage VI (BS VI) emission norms, which India drafted in 2016. For instance, Maruti Suzuki has invested a whopping Rs 9,000 crore (\$1.3 billion) in a new Gujarat-based manufacturing plant. The sudden leapfrog from BS VI emission norms to electric would mean a complete overhaul of a product line already reeling from slowing demand.

“Not just Maruti, but the associated component manufacturers would have made significant investments to service Maruti's volume. If production numbers reduce, this would adversely impact these tier-1 and tier-2 companies,” says a consultant for the automotive industry. He wished not to be identified since he consults with several auto manufacturers.

Rapid policy diktats have only muddied the waters. The second phase of the FAME (Faster Adoption and Manufacturing of Electric (& Hybrid) Vehicles) scheme was meant to help make the auto industry's switch to electric less painful. Indeed, it was welcomed for its generous Rs 9,000 crore (\$1.3 billion) subsidy layout (Rs 1,000 crore of which was for setting up charging infrastructure). It came, however, with a rather significant catch.

These subsidies are closely tied into a 50% localisation clause. One which mandates that some of the most key components of an electric vehicle—battery management systems, motors, chargers, controllers, among others—have to be locally manufactured and assembled by 2021.

Revised Phased manufacturing program for xEV parts for eligibility under FAME India Scheme (Phase-II)

Sr.No.	Category Item Description	e-2W	e-3W	e-3W	e-4W	e-4W	e-Buses
		L1 & L2	E-Rickshaw & E-Cart	L5	M1	N1	M2/M3
1	HVAC	NA	NA	NA	B	B	C
2	Electric compressor	NA	NA	NA	D	D	D
3	Wheel rim	A*	A*	A*	A*	A*	A
4	Power and control Wiring harness along with connectors	A	A	A	B	B	B
5	MCB / circuit breakers / electric safety device	A	A	A	C	C	C
6	AC Charging inlet Type 2	NA	NA	NA	C	C	C
7	DC Charging inlet CCS2 / CHAdeMO	NA	NA	NA	D	D	D
8	DC charging inlet BEVC DC 001	NA	NA	NA	D	D	NA
9	Traction battery pack	A*	A*	A*	A*	A*	A*
10	Wheel rim integrated with Hub motor	B	B	B	B	B	B
11	DC – DC converter	B	B	B	C	C	C
12	Electronic Throttle	C	C	C	C	C	C
13	Vehicle control unit	C	B	C	C	C	C
14	On Board Charger	C	B	C	C	C	C
15	Traction Motor	C	B	C	E	E	E
16	Integrated rear axle including, motor ,motor Controller, transmission system & rear braking system	NA	B	C	NA	NA	NA
17	Traction Motor controller / inverter	C	B	C	E	E	E
18	Instrument Panel	A*	A*	A*	A*	A*	A
19	Windscreen Wiping System	NA	A*	A*	A	A	A
20	Chassis (For e2W and e3W – allowable Imported Content @20%)	A*	A*	A*	A	A	A

Note: Traction battery pack to be assembled domestically, for which battery cells and associated thermal and battery management system may be imported.

- All other Parts, Components, Assemblies or sub-assemblies, other than mentioned above should be domestically manufactured / assembled. CMVR notified safety components should be tested by the testing agencies notified under rule 126 of CMVR, 1989.

Definitions :
NA – Not Applicable

Code	Effective date of indigenisation of parts
A	w.e.f 1 st April 2019
A*	w.e.f 1 st July 2019
B	w.e.f 1 st October 2019
C	w.e.f 1 st April 2020
D	w.e.f 1 st October 2020
E	w.e.f 1 st April 2021

Imported source includes direct as well as indirect Import.
Indigenous source implies domestically manufactured / assembled and tested.

The push towards localisation, and the speed at which policymakers are demanding it, has split the industry down the middle. It's a classic standoff between the upstart and the incumbent. Because for every auto industry Goliath, who's fighting the government's aggressive stance, there is a smaller, younger, more nimble David, who welcomes the move to localise. And quickly. What seems challenging to the established, scaled-up businesses, is an opportunity for new ventures who don't have a legacy and multi-billion dollar investments to shake-off.

For instance, with mobility businesses like Ola raising investments for electric fleets, says Mehta, the auto industry will similarly have to fund local research and development of solutions that don't even exist yet.

A string of policy decisions—starting almost six years ago—have constantly greased financial incentives to spur demand for EVs, the latest being a reduction of 7% GST (Goods and Services Tax) on buying an EV. But these measures, till date, haven't increased demand on the ground. A lack of widespread research and development in EV technology and specialised skills in the sector have also hindered localised production and kept prices high.

Localisation is undoubtedly a stiff mandate, but one that's critical to growing India's nascent EV market. But with the government and auto industry currently embroiled in a staredown, the question is who will be forced to blink first?

Plugging in

A vehicle that runs on an internal combustion engine (IC-engine) has close to 3,000 parts. An EV has hardly 300.

However, it's not the drastic reduction in parts that has traditional OEMs and component manufacturers sweating. It's the complete transformation of the drivetrain, in which engines, exhausts, pistons—the very core of a typical IC-engine vehicle—are made redundant. They are replaced by an electric powertrain, where the heart of the machine is the battery pack. This powers the limbs of the vehicle through a complex arrangement of motor controllers and chargers.

Most major OEMs have had a bold-faced response to the government's accelerated EV mandate. In an email statement to XXXX, Mahesh Babu, chief executive officer of Mahindra Electric, claimed the company, which has been manufacturing EV cars since its acquisition of REVA in 2010, is well ahead of the curve. However, senior members of the auto industry told XXXX that behind closed doors at a recent suppliers meet in Berlin, even an aggressive EV player like Mahindra doesn't see IC-engines dying out anytime soon.

And while Mahindra may not be overly worried, given that it's been a lone leader in the Indian EV car market, two-wheeler manufacturers like Hero MotoCorp, TVS and Honda have made their displeasure at the government's tight deadlines apparent. To these OEMs, the government has indicated that it wants their two-wheeler sales to go fully electric by 2025.

“The quick move to localise a brand new technology [electric powertrain], which is still in a developmental stage globally, has automakers concerned. This is unlike the 1980s, where India was trying to catch up with global tech standards in automotive engineering. Here there is no global roadmap to follow,” says Vinay Piparsania, consulting director at Counterpoint Research, who specialises in automotive research.

The current investments in BS VI norms, Piparsania says, will be a major deterrent to investing in indigenous electric vehicle tech. The gestation period for new tech to be locally developed, manufactured, and for that investment to be amortised will shoot past the government’s 2025 deadline for two- and three-wheeler makers. For 4-wheelers, the gestation period for adopting and testing new tech is even longer—a minimum of 7-8 years.

Parts and parcel

The disruptive timeline also puts pressure on another set of manufacturers who are integral to the auto industry. Component manufacturing, 2.3% of India’s gross domestic product, is under sniper fire with the new localisation norms. “The fates of component manufacturers are tied-in with the OEMs. Unlike their European or American counterparts, Indian OEMs still have to handhold their suppliers through new shifts in technology,” says Vinnie Mehta, president of the Automotive Component Manufacturers Association of India (ACMA).

Mehta represents the concerns of India’s \$51 billion component industry to the government. He is also the brains behind the conference Ather’s Mehta spoke at.

Despite the conference’s grand exhibition of electric motors, battery manufacturing systems, connectors and floor plans for the new Suzuki-Denso lithium battery plant in Gujarat, most ACMA members are still at an experimental stage with EV tech.

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“When there is no demand from our OEM counterparts, how can component manufacturers make large investments in electric components?” asks Mehta. To put it in context, in 2018, India produced 100,000 electric 2-wheelers against 22 million petrol and diesel ones. “It’s not possible for a well-established component industry to bother with such small numbers,” adds Mehta.

In fact, while the component industry has been a cash cow for the economy, with \$13.5 billion in exports in 2018, it still imports Electronic Control Units or ECUs, even for IC-engine cars, says ACMA’s Mehta. ECUs control electronic systems or their sub-systems in a vehicle and are usually customised by tier-1 companies for their customer OEMs.

Forget power electronics, India doesn’t even manufacture infotainment screens. Both Mehta and his fellow ACMA member Ashok Taneja, managing director of Shriram Pistons and Rings Private Limited, point to a specific trade agreement as a major cause for this. The International Trade Agreement (ITA) on ICT (information and communications technology) products, which India signed in 1997. It requires signatories to completely eliminate import tariffs on electronic goods such as printed circuit boards, electronic transformers and semiconductors by 2005. As a result, Mehta and Taneja say, the first Indian EVs were assembled from cheap, off-the-shelf products imported directly from China.

China Checks Out

By 2020, the Chinese government plans to phase out subsidies on all EVs. Without these, a shakeout in the Chinese market is inevitable, say experts. What could save leading manufacturers like BYD is their expertise in batteries. Global OEMs setting up shop in China will source from BYD over other manufacturers who haven't developed superior batteries yet.

Under localisation, the rampant imports will have to be whittled down to essentials like lithium cells and thermal management systems. The rest will have to be locally manufactured and assembled at scale, given the sped up timelines. While officials at Niti Aayog insist that the current scale of, for instance, the two-wheeler market provides an ample opportunity to develop local engineering and EV technology, Taneja strongly disagrees with the government's logic.

"India is the largest user of mobile phones in the world. But that's not been incentive enough for the industry to produce integrated circuits and complex chips locally. Ironically, getting to local scale shouldn't make us more import dependent," warns Taneja, underlining a peculiar catch-22 situation for manufacturers.

S.No.	Item Description		Current BCD w.e.f. 30/01/2019	Phased Manufacturing proposal	
				Proposed BCD	Proposed Date of PMP
1	CBU	Bus (HS 8702) & Trucks (HS 8704)	25%	50%	April 2020 onwards
2.	SKD	PV(HS 8703) & 3W (HS 8703/8704)	15%	30%	
		2W (HS 8711)		25%	
		Bus (HS 8702)		25%	
		Truck (HS 8704)		25%	
3.	CKD	Bus (HS 8702)	10%	15%	
		PV (HS 8703) 2W (HS 8711) 3W (HS 8703/8704) & Truck (HS 8704)		15%	
4.	Lithium Ion cells (HS 85076000) for use in the manufacture of Lithium Ion accumulator for EVs ()		5%	10%	April 2021 onwards
5.	Battery packs (HS 8507) for use in the manufacture of EVs		5%	15%	
6.	Parts for use in the manufacture of EVs like <ul style="list-style-type: none"> • AC or DC Charger • AC or DC Motor • AC or DC Motor Controller • Power Control Unit (Inverter, AC/DC Converter, Condenser) • Energy Monitor • Contactor • Brake System for recovering • Electric Compressor 		0%	15%	April 2021 onwards

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While on the one hand, the government wants to localise, on the other, import duties on electronics are structured to rise very gradually in the future. For instance, under FAME-II, import duties on lithium-ion battery packs rise by a mere 5% over the next two years. On parts like the AC/DC motor controller or power control unit, the current duty is 0%, though it's slated to go up to 15% by 2021.

For manufacturers like Taneja, two years is simply not enough time to localise production. Especially while still battling the threat of Chinese or Korean products slipping through the import duty gap created by the government's trade policy.

Split screen

"Everyone might not make it through the electric transition," Ather's Mehta says, almost ominously, at the 15 May conference. Off-stage, he's mobbed by a small group of Ather fans, eagerly plying him with their business cards. Mehta agrees that the government has put forth an aggressive timeline to indigenise the electric powertrain. "But it shouldn't take us three years to get there," he adds. Mehta says an 18-month deadline is enough.

Ather Energy, with its Internet of Things (IoT)-enabled scooters and in-house charging infrastructure, has shot ahead in an industry that has, at best, remained in first gear when it comes to EVs.

While Ather's primary investor, Hero, is itself fighting the government's localisation deadline, Mehta ironically finds himself at the other end of this debate. For him, the push towards localisation has come at an opportune time. Since the policy was announced in April 2019, Ather has worked on bringing outsourced assembly lines to India, and get parts like the wheel rim re-certified locally. "It took us three months," says Mehta.

Without the legacy trappings of older OEMs and built-up delivery scale, Ather has the luxury to build things from scratch. The same policies that have traditional OEMs in knots, provide long-term advantages to smaller, more nimble OEMs like Ather.

For one, the localisation mandate is actually in-line with Mehta's growth philosophy. Ather's banked on localised production from the start. They own the intellectual property on their EV system, run their own battery assembly, and design their own software stack. Even their chassis—the body of the vehicle—is designed in-house. Ather also chose to use localised frame motors instead of hub motors. Hub motors, which are more common in Chinese two-wheelers, but may not be best suited to India conditions, Ather indicates.

All of this allows Ather to claim subsidies under FAME-II. But this is possible, says Mehta, if only isolated parts of your components were being imported. "For companies that were importing a majority of their components from China, no timeline extensions would work," he adds. In addition, Ather's local component suppliers also benefit. "We constantly send feedback on performance to our partners. We end up educating our entire supplier base for the larger industry as well," says Mehta.

Like Ather, Exicom Tele Systems, a lithium battery manufacturer is also trying to localise its assembly line and components used in their batteries. "Earlier, we would pick off-the-shelf solutions from China. But now we're actively looking for local suppliers who can manufacture these parts," says Priyank Agarwal, head of strategy for the Gurugram-based group. The company has also invested in a research and development facility in Bengaluru to aid their move towards greater localised production. For now, however, the challenge is to find a good local substitute since Indian road conditions are volatile, says Agarwal.

ATHER'S MAKE IN INDIA GAMBIT

Tarun Mehta's decision to jump into the fray and localise is to ward off foreign competition. "India is not a closed market. In the next five years, the global EV supply chain will become more robust. They will supply products at a cheaper cost. We won't be able to stop imports from flooding large swathes of the market left empty by Indian manufacturers," he adds.

For both Mehta and Agarwal, localisation is an evolution of their business model. "Local suppliers will help us on supply chain management. When components come from overseas, we have to plan inventory two months in advance. Using Indian suppliers might be more expensive in the short term, but with increase in volumes, it will actually become cheaper to manufacture locally," says Agarwal.

Catching up

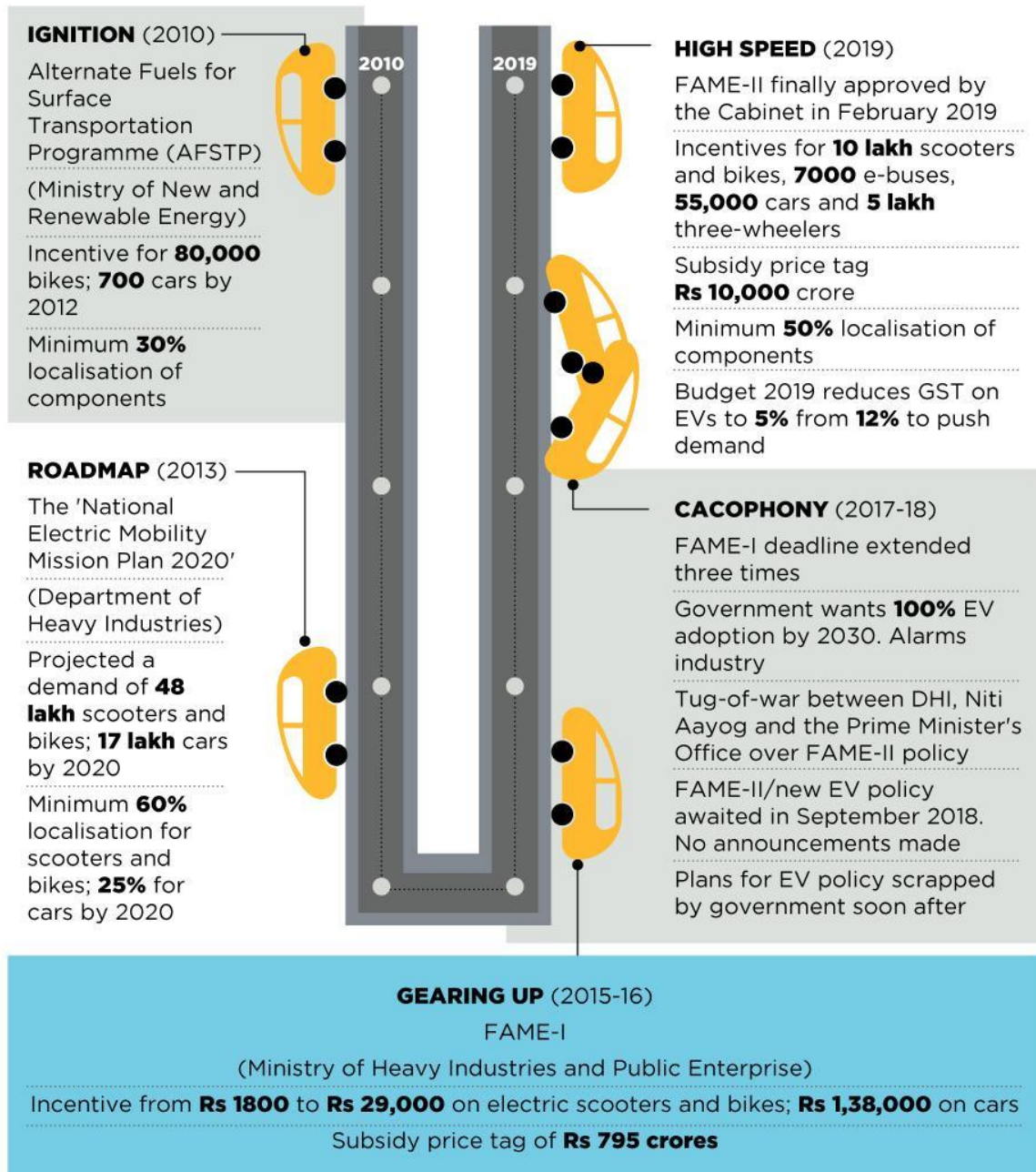
But not every manufacturer has the luxury of a long runway to launch like Ather did. These small and medium (SME) enterprises, who exist down the auto parts food chain, will have to rely on a piecemeal approach: pair foreign expertise with local muscle.

Nowhere is this more evident than in the dusty, industrial heart of Gurugram—Udyog Vihar. Last among a row of SME component manufacturers, sits 65-year-old Jay Switches India Private Limited. The building houses several small assembly lines which produce mechanical parts like keys, locks and door handles. Since the buzz around electric vehicles began, Jay too has invested in locally producing BCUs or Body Control Units, which control various parts of an EV. In addition, they are creating new product lines of DC-DC converters and two types of electric chargers—of 160 and 450 kW power.

"Localisation is not easy. But it's beneficial in the long run because it forces us to learn about electronics," says Pankaj Gupta, head of Jay's after-sales business. Jay currently supplies components to Tata, Ashok Leyland and Mahindra, among a host of other Indian and foreign OEMs like Daimler and Volkswagen.

A BUMPY RIDE

Government's start-stop policies haven't allowed the EV industry to settle down



Jay's strength is manufacturing. So it's leaning heavily on its joint venture with a Korean manufacturer to import the necessary tech to locally build these electronic parts. It's taken them over two years to

vet the right technology partner. They've also roped in a channel partner—a local manufacturer—to set up an assembly line to put these parts together.

“We can't afford to invest in fresh research and development now. We won't be able to build capacity as quickly,” explains Gupta. He further adds that these partners help de-risk their investment strategies, in case the policies shift in favour of another technology like hydrogen fuel.

For tier-2 and -3 component manufacturers, says Taneja, sudden policy flips or drop in production is even more damaging. These smaller units do semi-finishing operations like die-casting, forging and grinding. “60% of the machine tool industry makes components for IC-engines. If we go fully electric, how will these smaller units survive? They won't have the skill or investment to pivot quickly,” adds Taneja.

Within Jay's own industrial complex, the large group of men and women assembling parts together in heated, 40-degree cabins, clearly indicate where these shifts in policy are going to hurt the most.

Slowing it down

For an older generation of manufacturers, slowing down is ideal. While they have grudgingly accepted an electric future, they would rather walk than run to this destination. Manufacturers like Shriram and major OEMs have started investing in EV products, but are sceptical about the policy driving scale quickly.

“We should treat the 50% localisation mandate as a litmus test. It's unlikely to stick,” says the auto sector consultant mentioned above.

Instead of producing electric two and three-wheelers for the mass market, he adds, the industry is primed to establish a TESLA-like premium EV market. Taneja agrees, taking the example of the US. “In the US, it was a premium market and government investment in infrastructure that made EVs a viable option. Bottom-up approaches won't work here,” he adds. For instance, Ather retails at Rs 1.25 lakh (\$1,824)—approximately double the price of an oil-fuelled scooter. Even with subsidies, the price point is too high for the mass market.

So far, other planned launches like Hyundai's Kona Electric and Morris Garages' eZS— both SUVs— will be priced close to Rs 25 lakh (\$36,478), well beyond FAME-II's subsidy slabs.

The FAME-II policy, once looked at as a carrot, has fallen like a hammer on an old, established industry, exposing clear fault lines around mindsets and priorities. The government's policy agenda—reducing pollution and dependence on oil imports—lines up with newer OEMs and component manufacturers who want to indigenise and capitalise on a nascent EV market.

But for manufacturers who've sunk millions developing new engines to meet BS VI requirements, seeing a return on their investment is crucial. EVs almost seem to be a daily distraction from their ultimate goals. “All this policy has done is slow down investment in IC-engine because there's no clarity on what happens if demand drops,” says Taneja. That's why, while signing new agreements with OEMs, Taneja is now negotiating for co-investment to mitigate the risk.

“But my partner OEMs have assured me this EV policy push will not go far,” he concludes.