



‘My way is E-Highway’

Abhijeet Sinha

A technocrat with annuity financing model AHEM

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An exclusive interview of a technocrat with new infra financing tool Annuity Hybrid E-mobility (AHEM) to fund E-Highway projects in India.

“ Industry stakeholders admit that Indian E-Mobility sector has huge potential. But also in burning need of Ease of Doing Business.

Being the Fourth largest automobile market in the world has not come easy for India. Similarly the road to Electric Mobility adoption in the country also has faced lots of difficulties and is currently piled up with pressing challenges. Industry stakeholders admit that Indian E-Mobility sector has huge potential. But also in burning need of **Ease of Doing Business**. EoDB Division of ASSAR has stepped into the E-mobility sector in 2018 with the Reform, Perform and Transform mantra of our Prime Minister Modi. **National Highway for Electric Vehicle (NHEV)** an Ease of Doing Business initiative by ASSAR has recently completed its TECH-Trial Run of India's 1st E-Highway between Delhi and Agra on **Yamuna Expressway** in Dec. 2020. We have its lead technocrat with us – Mr. **Abhijeet Sinha**, National Program Director of **Ease of Doing Business** also **Project Director** of NHEV (in additional charge) for an exclusive interview with Mr. Ryann Pierre, Founder & Editor-In-Chief of NY Weekly to answer industry questions related to business barriers in E-mobility, need of E-Highways, banking challenges, hybrid financing model, emerging procurement tools, charging station cost, and allocation to investors, its break-even and actual utilization.



Welcome – Mr. Sinha, my 1st question is to know your side of affirmation or constraint about growth of Indian E-mobility sector.

1. Does E-mobility look as promising from financing insights too as it look from outside?

Well thanks Ryann, for having me here at The Brief. I might be less capable to announce or denounce growth prospective of Indian E-mobility sector. But I can definitely comment on the 'Financing' side of it, which interestingly had a mysterious past. EV is a simple technology in comparison to complex IC engine, but projected and marketed as a complex thing to adopt in day to day life; may be to avail subsidies from govt to cushion initial assembly line CapEx of EVs as it looks like govt was solely responsible for everything related to adoption.

We have been using many battery operated golf-cart type EVs in green campuses. But following European trends, instead of focusing on institutional and captive usages upgradation first; Indian EV industry made a premature jump to frontline retailing of EVs, where it came in direct competition with Diesel/Petrol/CNG and Hybrid vehicle; that too without sufficient charging infra in place. And disparity arisen out of this wrong equivalence were thrown on government as business barriers and difficulties to grow this sector.

Unfortunately, makes it look like government is alone responsible to invest into e-mobility and create a level playing field for both IC & EV players

'India is India not China, Europe, America or Africa! It has its own unique 'Economic' structures; where PCO (phone booths) have been a rural business and getting a 'Petrol Pump' license is an income guarantee for the next generation. But you want me to believe that there is no one interested in owning future Petrol Pumps ?' - **Abhijeet Sinha**

through subsidies. Financing EV infra or projects in such volatile situation is obviously negative for NBFCs and Banks; until there are numbers and without numbers investing in charging infra was another loss-making business thrown on govt as a responsibility. Unknowingly we created a deadlock and without bold reforms for Ease of Doing Business in its absolute sense; it seems impossible to break it. Especially when spending from govt budget into E-mobility in past 10 years reached nowhere.

Annuity Hybrid E-Mobility (AHM) is not an exception in row of financing tools but 2nd proven model after Hybrid Annuity Model (HAM) with robust utilization dynamics and funding options. But I am glad to see that we have graduated from this directional mistake and now focusing on various captive convertible opportunities first, and started



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2. As we know that all emerging-tech pilots of ASSAR are to scale-up a particular bold leadership reform through Ease of Doing Business - What major reform you wish to stimulate through NHEV?

India is India not China, Europe, America or Africa! Hence it has its own unique Economic structure; where PCO (phone booth) have been a rural business and getting a 'Petrol Pump' license is an income guarantee for next generation. But in 2018 Govt of India, Ministry of Power clarified that there is no such license needed for setting up tomorrow's Fuel Pumps means EV Charging Stations. It was a big bold reform from Modi Govt. But does people even know about it- No! It's not because people aren't interested. It's because there is no foot-print and system to process, validate, fund and support; if actually people, companies, institutions start filing applications for setting up Charging Stations. What all we hear is recently announced subsidies but what all need is a pilot to prototype all its components together and financially establishing it's breakeven for investors. So that people get their rightful Ease of Living and India gets entire nation's participation in its transition to achieve 'Circular Economy' with green and clean surface transport.

3. What is the origin of this new model called Annuity Hybrid E-Mobility (AHM)?



Ryaan there is no doubt that its utmost priority for India to adopt cleaner mode of transportation, not only from pollution point of view but also to cut short our Oil-Import bills from a growing economy perspective. Unlike others I don't doubt leadership intent as this Govt has done all nearly impossible bold reforms with same ease and intent. But, I admit that despite of this intent government failed to make E-mobility a business opportunity from 2010 to 2020. But I am not sure that it is the task of government to build businesses around technologies? Or the real question is - Why Govt is involved? If it wasn't their job to make E-mobility a profitable business.

I took over this **National Highway for Electric Vehicle** project in 2018 as **Project Director**, it nearly took a year to get an answer to this fundamental question-Why is the Govt involved? If it wasn't their job to make E-mobility a profitable business. I was astonished to find that it was the incompetency and greed of few corrupt officials of the UPA regime who picked this up as an opportunity to float procurement tenders and justify govt push by announcing subsidies to few of their favorites in exchange of customary corrupt practices of that era. NDA came as a govt of bold 'Reforms' it was clear that – We will have to introduce a faceless and hybrid procurement plus financing model for E-mobility; if we really don't want this promising emerging technology to succumb to customary corrupt practices of traditional procurement methods. Because only leadership has changed in 2014, bureaucracy and practices are from the same old Congress regime, where India was among 5 fragile economies and globally the worst place to invest and do business as per World Bank ranking till 2014.

For example - "Hybrid Annuity Model (HAM) to award road projects has encouraged investments in the sector says Moody" was not only a news headline. But such Models like **Hybrid Annuity Model (HAM)** has also changed the speed of making roads and highways in India beyond 4 folds, if I say in kilometers then; before we used to make 9-10 km roads per day and with innovative models like HAM; today we are making 38-40 Km road per day. **Annuity Hybrid E-Mobility (AHM)** is highly inspired from **Hybrid Annuity Model (HAM)** and we are privileged to have a visionary minister as Sri. Nitin Gadkari in leadership who encourage us to fight with operational and financial challenges of infra projects.

4. Why do you think that AHEM is credibly best suited for Indian E-mobility market economics?

AHEM is best suited for Indian E-mobility Infra projects since its procurement is based on merit, not on the theory of being cheapest. Also, it's financing model is based on the conversion of traffic between two cities not on 'multi-layer tendering' and governmental buying and spending on subsidies. In common terms we managed to make E-mobility viable and eventually profitable by making NHEV a market place for selling EV products and commercialization of EV related technologies. This Ease of Doing Business prototype serves as a platform of mutual trust for users and sellers of EVs, with synergies of Standards and interchangeability as designed by NITI Aayog, DST for a national transformation impetus on E-mobility and energy efficiency. Where all EV related product & service providers cannot just vend and trade their products and technologies into existing and up-coming demands from E-highway projects under NHEV. But they can also avail key EoDB facilities like – Land for stations, finance for EVs and infra, insurance, lease, hire, ticketing, vehicle buyer operators, road side assistance, mobile break down services on highways.

"AHEM procurement is based on merit, not on the theory of being cheapest. Also, it's financing model is based on the conversion of traffic in highway between two cities, not on 'multi-layer tendering' or anticipated adoption." he explained.

5. How are you planning to fund these stations and NHEV components with AHM?

There are only 3 components in NHEV and all three has different but robust financing sources

A) Charging Stations: 18 of them to be funded with five different AHM financing options on annuity and reaching to its breakeven in 36–40 months. 2 Solar powered prototype stations are to be allocated to Renewable Power institutions. B) E-Cars & E-Buss Fleets: to be funded by Consortium Banks on monthly EMI, paid from cash flow of its fleet operators. C) Network & Road Side Assistance Infra: to be developed with support of IT Ministry as Central EVRS (Electric Vehicle Registration System) as a white level interface fo public usages to access these E-highways.

6. What Ease of Doing Business E-mobility players can expect from NHEV?

Exactly opposite to what it is today, on name of Ease of Doing Business, what is being thrown into E-mobility sector - First is ‘Lobbied Subsidies’ from one pocket to another and other is ‘The Hope that govt will build an infrastructure to support your EV product sales someday’. But I am sorry to defenestrate it, perhaps what I should do is to draw your attention to what could be the actual Ease of Doing Business through the arguments we have advanced with use case of Annuity Hybrid E-Mobility (AHM) to fund NHEV today.

Because today’s E-mobility market we have

- A) EV projects listed in negative list of banks and NBFCs for funding,
- B) Insurance companies are reluctant to insure e-vehicles if you are a new OEM,
- C) DISCOMs doesn’t even hold a portal to process charging station applications,
- D) We don’t have a live national dashboard of EV adoption or registration even .
- E) We have been buying EV from govt pocket last 10 years still nowhere in the world map.
- F) EVSE become obsolete in technical inter-operability by the time of tendering get complete.

I know we are challenging the very idea of subsidies on pretext of Ease of Doing Business and it could be practically argued in this prototype, that the economic situation of our nation is not that strong that it can hold the capital expenditure cost of making pan India Charging stations network from govt funds and subsidies. If we had such expenditure potentials, by now charging infrastructure would have been in place, no nation would wait even a year to cut-short its huge oil-import bills; if it’s possible by spending on infrastructure forget about wasting 10 years on it.

Now post COVID economic impacts, govt spending on E-mobility shall also go through further scrutiny and restructure. It’s high time for this emerging tech to take driving seat and make its commercialization profitable with minimal subsidy and support from govt. And it is only possible when EVs go out of metros on highways or else it will become another example of CNG.

We are challenging the very idea of subsidies on the pretext of Ease of Doing Business in E-mobility but significance of pilots is that it could be practically argued in this prototype both technically and financially” – Abhijeet affirmed

7. We heard too good to believe numbers about charging infra utilization in NHEV upto 30% on highways in comparison to existing 3% in cities. Are they real or motivational?

Ryann, I must say it's good to be interviewed by you now as it's one of the most critical questions that wasn't asked. But early debate could have saved lots of efforts and CapEx we invested in cities before making E-Highways for EVs. Because in cities you can't mandate charging spots, people are free to land at any charging station like petrol pumps. But on highways where we have daily routine transport vehicles and they even have their petrol pumps and stops marked and well negotiated.

When we estimated daily numbers of passenger transport vehicle between pilot cities Jaipur – Delhi – Agra and did a TECH-Trial run to estimate induction of 0.8% to 3% electric vehicles in the traffic, their committed charging (like negotiated petrol pumps) managed to break-even the cost of charging infra and CapEx spent on EVSE in 36-40 months. I remember the criticism Mr. E. Sreedharan had in our developing nation; for having huge expenditure projections of Metro Rails for making tunnels and overhead tracks. But Metro reached its break even in 8 years. We have lesser spending in making E-Highways in comparison to metro and similarly reaching break-even in shorter period of 3-4 years.

But lesson learnt from similarities between Metro Rail and E-Mobility is – EV is also not a stand alone product. People get three options to use EVs without buying them in NHEV as 1) E-Bus, 2) Electric Car (with driver) and 3) Electric Cars (without driver) and all of them has their fixed start, stop and end points as per their technical capabilities and charging needs without even letting the passenger know that -whether they stopped for coffee break or technical break? It gives each of our charger a committed 30% off-take charging opportunity to charge vehicles running in premeditated network like metro rails on this E-highway. I am reasonably sure that this utilization will further increase from 30% with increase in vehicle. Because the little quantity of vehicle we are introducing in current traffic of passenger vehicle will have at least 3 days waiting to get seat booking in E-bus or an EV for a self-drive trip to Jaipur – Delhi – Agra.

In cities you can't mandate charging spots, people are free to land at any charging station like petrol pumps. But on highways even routine transport vehicles have their petrol pumps and stops marked and well pre-negotiated," says Abhijeet

Vehicle has telecom and telematics installations with encrypted SIMs to connect with support stations anytime just a button away and the E-Highway Control Room can also instruct and restrict them from losing their highway tracks with calls to car audio systems and controls on BMS.” – Abhijeet added

8. I have heard one more exciting thing about NHEV that it's going to be an EV theft-proof highway, it sounds like next-gen tech to me- will you elaborate it a little?

Of course it is, but it was a profitable byproduct came out of struggle we went through to get our EVs funded through banks for partner fleet operators. Banks primarily inspect security of stock or product for which they advance, which is EV in this case. Secondly the existing revenue model from which borrower is going to pay its installments. Fortunately, there is already sufficient tourism to Jaipur and Agra from Delhi to absorb 3% EV inductions to meet Bank's 1st criteria and since we save on fuel cost thus out passenger ticket cost also came lower than petrol / diesel vehicle. But didn't want our fleet operators to give collateral securities to get EV loans and it was only possible if we make our entire fleet technically theft proof and high on alert with geo fencing. If you ask me about technology then there are active and passive trackers installed in our EVs at commencement with inward and outward cameras for passenger safety and road safety. Vehicle has telecom and telematics installations with encrypted SIMs to connect with support stations anytime just a button away and E-Highway control room can also instruct and restrict them from losing their highway tracks with calls to car audio system. Still if they don't come back to highway their vehicle can be disabled from control room through battery management system and nearest station team can reach for rescue within 30 min.

“Earlier traditional procurement processes had lots of barriers for startups like complex and needless qualifying criteria, presumptive ‘specifications’ and ‘scope of work’ which minimize innovations and put a high cost of participating in tenders as fee and performance guarantees. We efficaciously solved each of them in meritorious & consumer centric procurement of AHM” Abhijeet clarifies

9. This emerging TECH question came from tech enthusiasts who believe ‘Battery Swapping’ or Range Extender will soon restructure E-mobility sector and make many currently emerging tech obsolete. Are you also doing a range extender pilot on this 500 Km prototype E-highway in NHEV?

Yes, we are allocating 1 vehicle out of each batch of 25 vehicles to joint R&D team of range extenders to develop an additionally attachable/ detachable battery in boot of our vehicle as range extender for extra 100 km. We have achieved initial success and requisite partnership to test its prototypes in this pilot. We would formally release its technical and capability related information jointly with its stakeholders only such as battery operator, technology partner and participating EV OEMs. You will have to wait for this as talking about it alone will be like overstepping in their TECH space. But being Project Director I can say our EVs shall be ‘Highway Edition’ EVs with range extenders where you can insert your range extender in 5-10 min at any station for next 100 km.

10. What is there in NHEV for StartUps, how are they benefitted financially?

We believe in giving equal opportunities to startups in emerging tech like E-mobility; be it a corporate giant or a startup they both are moreover starting from same starting point with this emerging technology in India. Currently traditional procurement process has lots of barriers for startups like complex and needless qualifying criteria, presumptive specifications and scope of work which minimize innovations and high cost of participating in tenders as fee and performance guarantees.

We kept registration and screening of preliminary eligibility to qualify supply standards, completely faceless and free of cost. Those who show willingness to participate in prototype and qualify with their existing products and projects, they can sign-up to participate in supply of any state or highway up-gradation with their products, services or technologies. Since, it’s a PPP model they can also seek exemption from Earnest Money Deposit being a startup or MSME. It reduces their performance guarantee considerably and they can still take refund of their fee if could not secure business orders from the partial fee they paid post exemption. Such ease in participating and competing against corporate giants put lots of confidence in startups at a very minimal cost and also encourage them to understand that merit and innovation is everything they need to secure business in such scalable Ease of Doing Business pilots.

Learning lessons from past delayed payments, we kept their disbursement and payment process completely faceless so that their startup doesn’t suffer bureaucratic red-tapism and miss their opportunity to scale-up.

11. Your project has been recently awarded with best PPP Project of E-Mobility of year 2020. How is Public - Private – Partnership (PPP) model structured in NHEV?

NHEV has been a promising pilot in E-mobility sector for its capability of paradigm shift – that e-mobility can be a sustainable business from day one and a profitable business from 3rd year post break- even. Its scalable model has pulled in private investor's interest to take up charging stations with CapEx. But prototype has given preferential opportunity to PSUs. NBFC and Banks has already enabled rural applicants and MSMEs with collateral free credits up 5 Crore to own these stations and scale up at state highways.

Setting up an EV charging station like a petrol pump worth 5 Crore with available collateral free credit facilities is a profitable business. It also reaches its break-even in next 3 years and serves as an EV Hub for highway and rural transportation both with 20 E-bikes and 3 wheelers at each station for local vicinity. This Ease of Doing Business opportunity is shifting load from govt pocket as a single source of subsidy to private sector; as an opportunity to own these future petrol pumps. Success of this pilot would not be a success of Abhijeet or Ease of Doing Business division alone but it is a success of 'Ease of Living' and transition from fuel-based transport to 'Green Economy' with emission free surface transport.

Thank you Mr. Sinha.

We will take a short break and it's exciting to continue this conversation with a Technocrat and Ex-Banker Mr. Abhijeet Sinha. But before that, I must disseminate with our readers that there are lots of questions regarding critical and controversial aspects of NHEV regarding- transparency, accountability, allocation of these highways to ASSAR, its methodology, revenue and procurement model and what if these station doesn't get picked up by PSUs; are yet to be answered in concluding part of the interview at New York Weekly next week.

So far it's been most promising pilot of E-mobility for its capability of paradigm shift – that e-mobility can be a sustainable business only after a decade not from day one. It can be a profitable business from 3rd year post breakeven. Its scalable model has pulled in private investor's interest to take up charging stations with CapEx like petrol pums and gas-stations." Says Abhijeet