

TERRA NOVA | JUL 01 2022



India's Battery Swapping Policy: Too much expected from too little?

Question

India is on the cusp of an e-mobility revolution with a plan of transition to clean mobility, led by electric vehicles (EVs). With reference to above statement, critically discuss the Battery as a Service (BaaS) business models in ushering in e-mobility revolution.



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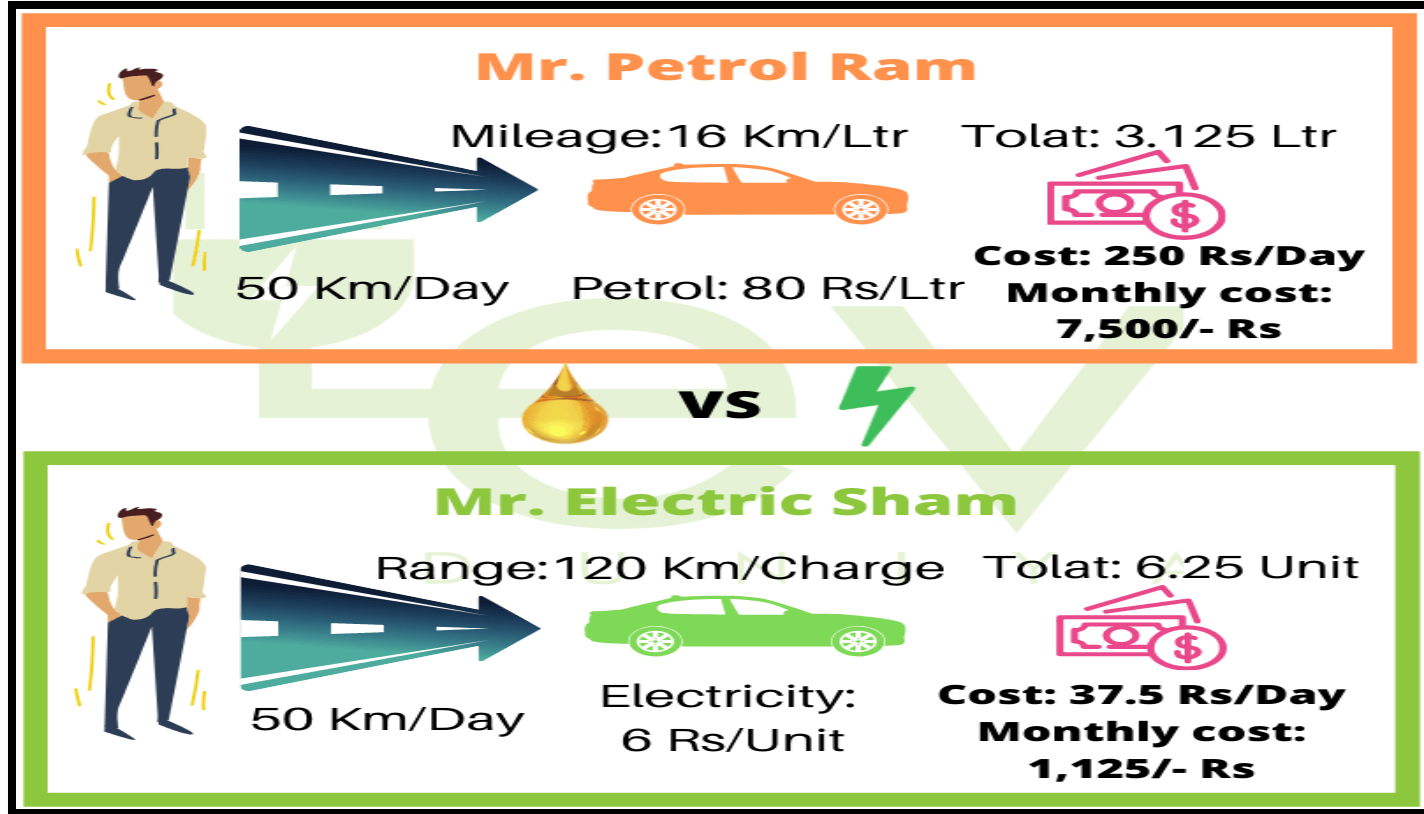
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The Observation



NITI Aayog's Draft BS Policy

BATTERY SWAPPING POLICY



1. INTRODUCTION

India has committed to achieving net-zero emissions by 2070 at the 26th Conference of the Parties (COP26) in November 2021. This will require clear pathways to decarbonize high greenhouse gas (GHG) intensive sectors such as transport and energy.

To decarbonize transport, the transition to clean mobility, led by electric vehicles (EVs), is paramount. Several supporting initiatives have been implemented, such as the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME) I and II, and the Production Linked Incentive (PLI) scheme for the National Programme on Advanced Chemistry Cell (ACC) Battery Storage (NPACC) to boost indigenous battery manufacturing capacity. State governments are also developing complementary policies to promote EV adoption.

NITI Aayog's Draft BS Policy

The key **objectives** of this policy are to:

1. Promote swapping of batteries with Advanced Chemistry Cell (ACC) batteries to decouple battery costs from the upfront costs of purchasing EVs, thereby driving EV adoption.
2. Offer flexibility to EV users by promoting the development of battery swapping as an alternative to charging facilities.
3. Establish principles behind technical standards that would enable the interoperability of components within a battery swapping ecosystem, without hindering market-led innovation
4. Leverage policy and regulatory levers to de-risk the battery swapping ecosystem, to unlock access to competitive financing.
5. Encourage partnerships among battery providers, battery OEMs and other relevant partners such insurance/financing, thereby encouraging the formation of ecosystems capable of delivering integrated services to end users.
6. Promote better lifecycle management of batteries, including maximizing the use of batteries during their usable lifetime, and end of life battery recycling.

NITI Aayog's Draft BS Policy

9.1. Rollout of battery swapping

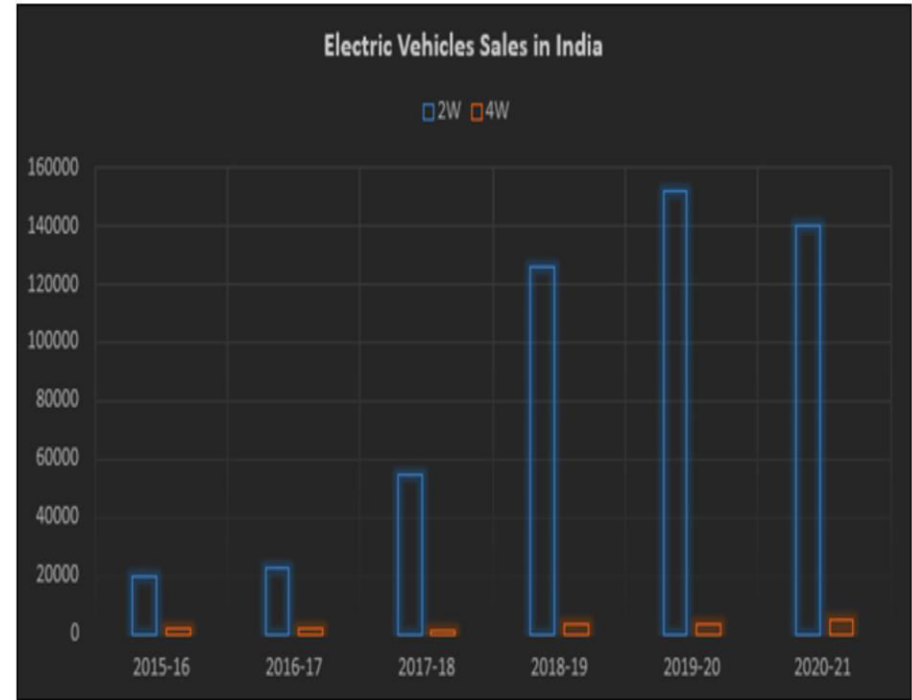
The target vehicle segments for battery swapping are e-2Ws and e-3Ws, which are heavily concentrated in urban areas. The rollout of battery swapping stations will therefore be phased in the following manner:

- **Phase 1 (Years 1-2):** All metropolitan cities with a population greater than 4 million (as per Census 2011) will be prioritized for development of battery swapping networks under the first phase.
- **Phase 2 (Years 2-3):** All major cities such as state capitals, UT headquarters and cities with population greater than 5 lakhs (as per Census 2011) will be covered under the second phase, given the importance of the 2W and 3W vehicle segments in growing cities.

Any central and state government agencies involved in implementation of battery swapping networks may consider this prioritization when providing additional policy support and/or subsidy allocations for battery swapping networks.

NITI Aayog's Draft BS Policy

1. 2W & 3W vehicles account for 70-80 percent of vehicles in the country
2. 2W & 3W vehicles are cost-competitive with an internal combustion engine (ICE)
3. 2W & 3W vehicle batteries are easier to swap



Source: Society of Manufacturers of Electric Vehicles

Will Battery Swapping be a success?

1. Even if all 2W & 3W vehicles are turned to electric, will it reduce appropriate amount of GHGs?
2. Will companies invest in BS stations? What is the operating cost of BS stations? Land for BS stations?
3. What about Battery depreciation?
4. Will there be unified standards?
5. BS Safety norms?

International Experience

- Idea of Battery Swapping is not new.
 1. **German** company Mercedes-Benz tried it in the 1970s but it did not succeed.
 2. **Israeli** company Better Place introduced it in 2007 but it went bankrupt.
 3. **American** company Tesla tried it in 2013 with a modular design for its car but later opted for its own proprietary cable-based charging system.
 4. **Chinese** included BS technology in the 'national new energy vehicle development strategy 2021 to 2035' (Testing on BS started in 2010)
 - In early 2021, it is said that there are **562 BSSs operative in China, providing service to taxis, online car-hailing vehicles, private passenger vehicles and business vehicles. More than 100,000 cars have been sold in China with battery-swapping systems.**



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