PAYMENT SECURITY MECHANISM (PSM) USHERING A NEW ERA OF ELECTRIC BUS DEPLOYMENT IN INDIA

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INTRODUCTION

In 2015 India made a landmark geopolitical decision by signing the Paris Agreement and taking a major step in its goal of attaining a sustainable future. At present, India is in its transformative path and is standing strong to its commitment to achieve Net Zero Emissions target by 2070[i]. Over the years India has formulated robust regulatory frameworks to support its ambition of shifting towards clean energy alternatives, thereby creating a strong foundation for Viksit Bharat. In recent years, India has aggressively pushed for promotion and deployment of Electric Vehicles (EVs), largely in the public transport sector. Several states have come up with their respective State Electric Vehicle Policy that promote and incentivises the use of EVs. However, the market of clean energy alternatives, especially electric buses (e-buses) is still at a nascent stage of development in India and being a sunrise sector, at present it involves heavy capital expenditure.

In the context of the rapid expansion of the e-bus market in India, this publication aims to critically analyse the preconditions that led to need for introduction of PSM in India, its working, and scope for improvement that could be considered for the fruitful implementation of the same.

PAYMENT SECURITY MECHANISM (PSM) IN THE CONTEXT OF PUBLIC ELECTRIC BUS SERVICE IN INDIA

WHAT IS PSM?

In India, e-bus service is predominantly managed by State Transport Undertakings (STUs) or Special Purpose Vehicles (SPVs). The recent adoption e-buses by STUs/SPVs has led to a reduction in operating costs by at least 50% compared to diesel or Compresses Natural Gas (CNG) buses[ii]. However, the upfront cost of e-bus is nearly two to four times higher than conventional options, presenting a significant barrier to their direct purchase. New business models, such as the 'Bus-as-a-Service' approach, which involves purchasing e-bus services through a fixed contract, significantly lower the financial and operational risks for STUs/SPVs. This led to the growing popularity of the Gross Cost Contract (GCC) model of e-bus operations in India, over the previously existing Outright Purchase Model where the STUs owned the buses.

Under the GCC model, STU/SPV pays the operators or Original Equipment Manufacturers (OEMs) a per kilometre rate for operations. In exchange, the operator/OEM supplies a designated number of e-buses for operations as specified in the contract. Responsibilities such as e-bus scheduling, route planning, fare box revenue collection, providing conductors, and allocating land for depot construction rest with the STU/SPV.

Meanwhile, the operator or OEM is responsible for depot development, e-bus and depot maintenance, as well as providing drivers. An overview of the structure of the GCC model has been illustrated below.

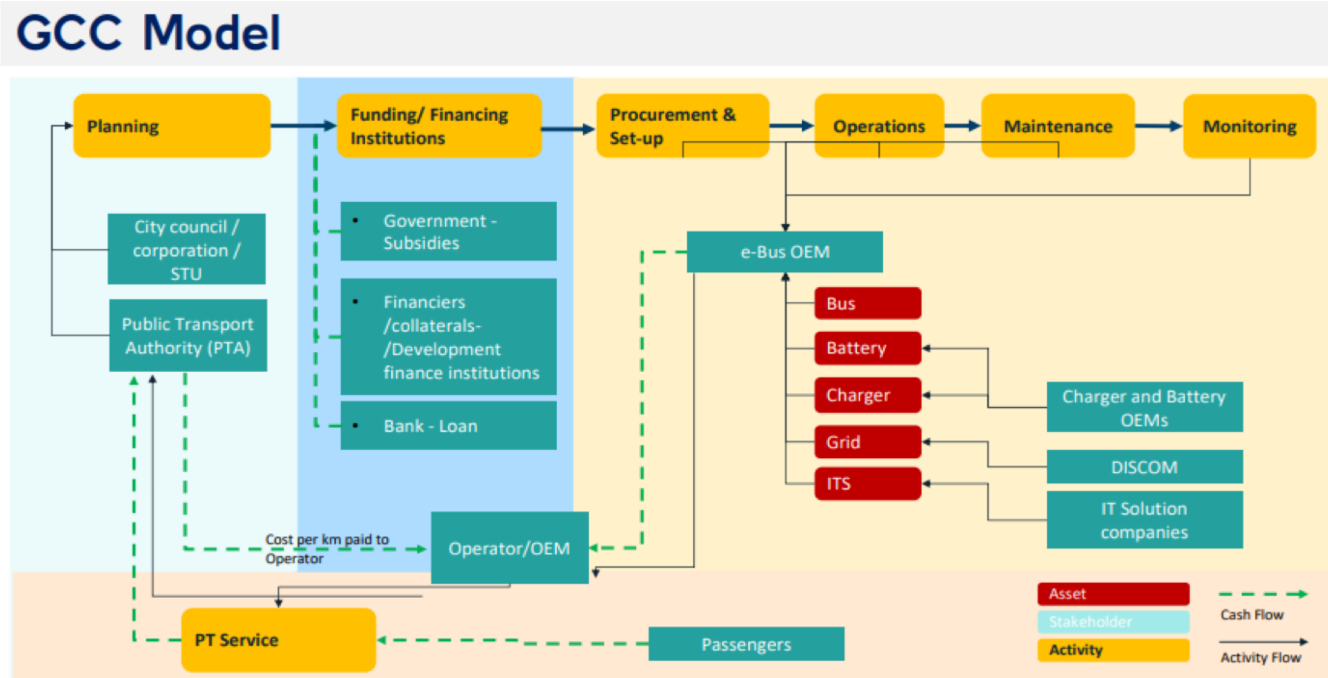


Figure 1: GCC Model (Source: Development of the India Zero Emission Bus Market Investor's Guide by C40 Cities & TUMI E-Bus Mission[iii])

Payment Security Mechanism (PSM) is a dedicated fund that has been created by Ministry of Heavy Industries (MHI), Government of India to avoid payment risk and improve bankability for the OEMs/operators. The Ministry notified PM e-Bus Sewa-Payment Security Mechanism (PSM) Scheme through Gazette notification S.O. 4711(E) on October 28, 2024[iv]. The scheme has an allocated budget of Rs. 343,533.30 million from the Government of India, supporting the deployment of more than 38,000 e-buses in the country through GCC model. The objective of the scheme is to provide timely payment for e-bus operations to the operators/ OEMs in case of default by the STU/SPV. Additionally, the fund will support capacity building and training initiatives, along with fostering the adoption of innovative technologies by STUs/SPVs for the implementation of PSM.

WHY IS THERE NEED FOR PSM?

Most STUs/SPVs face financial losses due to the widening gap between the rising costs of service delivery caused by factors like increasing cost of fuel and staff expenses, and the slow growth in revenues which is hindered by fare affordability concerns. Figure 2 indicates the financial health of 35 STUs in the country between 2021-2022. The graph shows that 61% of expenses are allocated to personnel, taxes, depreciation, and other costs, compared to just 39% in overall revenue generation for the STUs. This creates a significant gap between revenue and expenses, resulting in cumulative losses for STUs/SPVs over the years, which is a key reason for the introduction of the PSM. STU/SPVs rely on additional funds from the state or Government of India which causes delay in budgetary sanctions and fund release, resulting in delayed payments to operators. This creates a significant hurdle that dampens market sentiment and discourages wider participation from operators/OEMs in the smooth deployment of e-buses in cities.

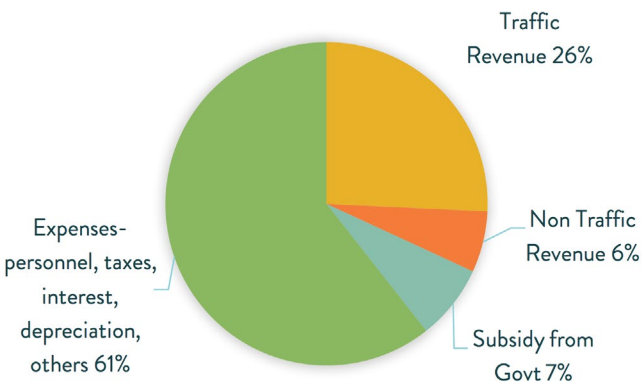


Figure 2: Financial health of 35 major STUs in India in 2021-22 (State Transport Undertakings Profile and Performance 2021-22 report published by Central Institute of Road Transport Pune, India)

India's regulatory framework for deployment of e-buses from Faster Adoption and Manufacturing of Electric Vehicles (FAME) II onwards formulated mandates like procurement and operations through GCC model using a standardised Model Concession Agreement (MCA) issued by Government of India and ensuring a minimum share of local manufacturing of 40%. However, FAME II witnessed disparities in the bidding price in different cities and for different bus types. The difference arose due to the variations in the number of e-buses procured, technical specifications, operational parameters and creditworthiness of different STUs/SPVs that posed potential credit risk to the bidders. This led Convergence Energy Services Limited (CESL) – the subsidiary of Energy Efficiency Services Limited (EESL), a joint venture company of four Central Public Sector Undertakings and promoted by the Ministry of Power, Government of India, launching the procurement of 5,450 e-buses, the largest e-bus tender of the world through its Grand Challenge in 2021. The aim of the Grand Challenge was to aggregate demand for e-bus of different cities which led to combining the purchasing power and secure low price quoted by bidders due to large total quantity aggregated[v].

The latest scheme launched by Ministry of Housing and Urban Affairs (MoHUA), Government of India, 'PM-eBus Sewa Scheme' in 2023 aims to accelerate e-bus operations in India through deployment of 10,000 e-buses on Public-Private Partnership (PPP) model[vi]. With over 16,000 buses in various stages of procurement, ensuring payment security for operators in this capital-intensive industry assumes greater significance. The PM-eBus Sewa Scheme's operational Viability Gap Funding (VGF) allows authorities to bridge this gap in operating costs by availing assistance on a per kilometre basis for providing services. On 29 September 2024, Ministry of Heavy Industries, Government of India launched PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme vide Gazette notification S.O. 4259 (E) that aims to support 14,028 e-buses through a total fund support of Rs. 43,910 million[vii].

With such huge demand for e-buses in the recent years, and consistent delay in payment from many STU/SPV to the operator/OEM, there has been a growing concern observed pertaining to reluctance from OEMs to further participate in the e-bus tender process. A series of tenders with limited participation from OEMs has been largely due to concerns related to creditworthiness of the STU/SPVs[viii]. The Government of India judiciously acted upon this concern by Ministry of Heavy Industries launching the PM-eBus Sewa-Payment Security Mechanism Scheme on 28 October 2024. Integrating the aspect of PSM in the scheme has been a milestone achievement in the regulatory framework of e-bus procurement and operations in India.

PSM is thus, expected to improve the risk profile to enable the STUs/SPVs to expand and modernise their services at competitive prices, even if they have a status of aggregate loss-making. Through the process of PSM, it is expected that the STUs/SPVs would be able to tackle effectively counterparty risks that would improve the reliability of concession contracts of e-bus. Thus, it is highly probable that PSM would be able to attract investments in the e-bus market. This scheme through integration of PSM has also created a potential opportunity for international OEMs to explore the Indian market as a manufacturing hub[ix].

A similar model in the power sector in India has proved to be beneficial for the sector and has been explained below.

CASE STUDY: PSM APPLIED IN THE INDIAN POWER SECTOR

Traditionally, Distribution Company or Utility (DISCOMs) in India, are owned by state and have been suffering due to leakages in transmission and distribution system, poor efficiencies in collection, tariff controls etc. The power producers enter into Power Purchase Agreements (PPAs) with the DISCOMs for sale of power on key contractual terms such as tenure, tariff, billing and PSM. However, the poor financial health of the DISCOMs raises the price at which power producers can raise capital due to the risk on receivables.

Delays in payment to power producers have serious cash flow implications on them, hurting their long-term business viability. To reduce the perception and the quantum of this risk for investors, the government has ensured multiple levels of payment security in renewable energy PPAs, such as letter of credit, default escrow agreement, payment security fund, tripartite agreement and state government guarantee in the form of PSM. In August 2016, Solar Energy Corporation of India Limited (SECI) proposed Rs. 15000 million Payment Security Fund for ensuring timely payments to solar developers under the Viability Gap Funding (VGF) scheme announced by the Ministry of New and Renewable Energy (MNRE), Government of India. This scheme follows a similar structure as above, mainly offering developers up to three months of payments towards delayed payments, as well as several other security measures.

The following list briefly describes the different types of security measures provided[x]:

- **Letter of credit:** A letter of credit (LC) is a standard document offered by banks (typically against a fee to be paid by DISCOM) guaranteeing the beneficiary of payments up to total amount of the letter (typically 1.1 times average monthly energy bill raised by Solar Power Developer to DISCOM). LC can be invoked if DISCOM defaults on its payment.
- **Default escrow agreement:** An Escrow is a legal concept in which a financial instrument or an asset (in this case, DISCOM's cash flows) is held by a third party (typically a bank) on behalf of two other parties. A default escrow agreement is signed between the power producer and DISCOM for an amount typically equivalent to the LC.
- Payment security fund: It is a capital reserve that provides interest-free capital to its beneficiary in case of default in payments by any DISCOM (typically equivalent to three months of payment for energy sale to DISCOM).
- **Tripartite agreement:** In the case of default by state-owned DISCOMs, the central government can withhold financial assistance payments to the state governments. Experience with tripartite agreement shows that it plays a strong deterrent against defaults/delays by DISCOMs. Tripartite agreement is specifically applicable to PPAs signed between power producers and SECI.
- **State government guarantee:** In case of PPAs signed directly between power producers and state DISCOMs, a fixed amount may be guaranteed by the state government as an alternative to tripartite agreement.

Payment security mechanism had a positive impact in improving the credit rating of renewable energy projects and in ensuring certainty of payments from state DISCOMs. The mechanism under which it works is illustrated below:

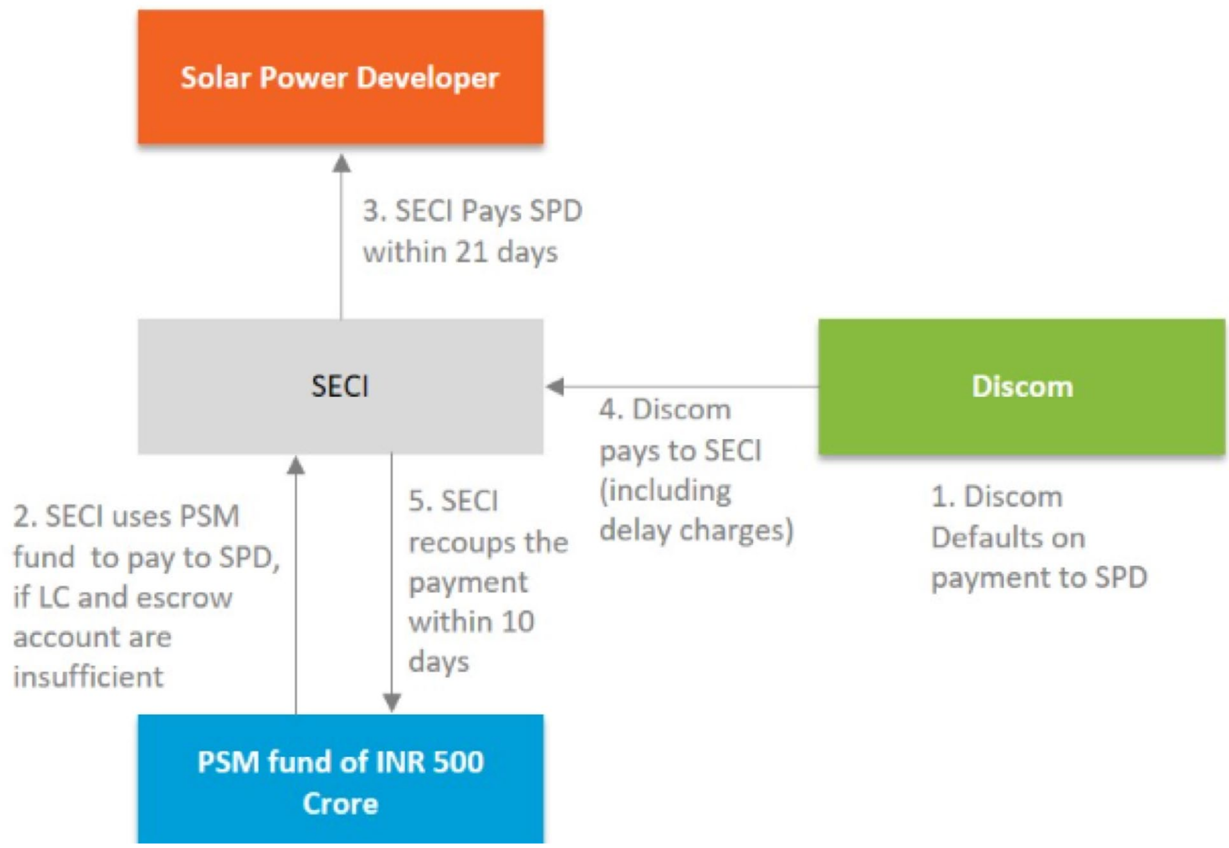


Figure 3: Payment security mechanism illustrated with the help of an example of SECI's payment security fund for VGF scheme under JNNSM (Source: CEEW)

WHO ARE THE MAJOR STAKEHOLDERS?

The Ministry of Heavy Industries (MHI), Government of India is designated as the nodal Ministry for implementing and monitoring the PM-eBus Sewa-Payment Security Mechanism Scheme through CESL as implementing agency of the Scheme[xi]. The major stakeholders from national, state and city level organisations have been mentioned below.

National	**Ministry of Heavy Industries** **Convergence Energy Services Limited** **Reserve Bank of India**
State	**State Government**
City	**Public transport agencies – STU/SPV** **Operator/OEM**

Figure 4: Major stakeholders of the PM-eBus Sewa-Payment Security Mechanism Scheme (Source: Authors)

To ensure effective operation and implementation of the Scheme, a Steering Committee (SC) constituting the members from the key stakeholders of the Government of India has been formed.

Figure 5: Composition of Steering Committee responsible for implementation of PM-eBus Sewa-Payment Security Mechanism (PSM) Scheme (Source: PSM Gazette Notification dated 28 October 2024)

CESL would be responsible for managing and coordinating, developing, operating and maintaining a technology-based platform for running the scheme. The scheme has laid down well-defined roles of the different stakeholders, including the Steering Committee, CESL, Reserve Bank of India (RBI), and the State Governments / Union Territories / Public Transport Authorities (PTAs) like STUs/SPVs.

HOW WOULD PSM BE IMPLEMENTED?

The PM-eBus Sewa-Payment Security Mechanism Scheme would provide payment security coverage for up to 12 years for each e-bus deployed under the Scheme through the budget of the Government of India. Under this scheme, three possible scenarios for payment have been worked out:

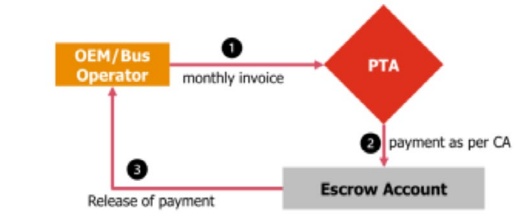
(1) Business as usual scenario - The STUs/SPVs are required to establish and maintain an Escrow Account as outlined in the Concessionaire Agreement (CA). Operators will submit invoices to the STUs/SPVs on a regular basis, adhering to the specified timelines. The STUs/SPVs must ensure the timely processing of these invoices.

(2) Payment Default by PTAs - If insufficient funds in the Escrow Account led to delays or non-payment by STUs/ SPVs within the prescribed timeframe outlined in the CA, operators may submit a PSM Request to CESL to activate the PSM under the Scheme. CESL will review, verify, and approve the request. If the request aligns with the CA, CESL will process the approved amount from the Scheme Fund to the Escrow Account established under the CA.

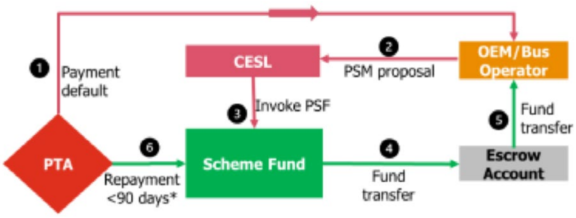
STUs/SPVs are obligated to repay the full amount disbursed from the Scheme Fund, along with a Late Payment Surcharge (LPS), within 90 days of disbursement. The LPS will be charged at 1% per annum over the prevailing three-year Marginal Cost of Funds-Based Lending Rate (MCLR) set by the State Bank of India (SBI) on the date of disbursement, compounded annually.

(3) Invocation of Direct Debit Mandate (DDM) through RBI - The Reserve Bank of India (RBI) is the central bank of India that is a regulatory body responsible for regulation of the Indian banking system. If STUs/SPVs fail to repay the full amount disbursed from the Scheme Fund, along with the LPS within 90 days of the disbursement date, the Ministry of Heavy Industries (MHI) will request RBI to invoke the Direct Debit Mandate (DDM). DDM stipulates that, in the event of a failure to recover scheme funds by the PTAs, State Governments, or Union Territories, MHI shall request RBI to invoke DDM. The RBI will transfer the required amount to the Scheme Fund by debiting the account of the respective State Government or Union Territory (UT), provided there is a clear and sufficient balance in the account at the time of executing the mandate.

i. Business-As-Usual (BAU) - Payment by PTAs



ii. Payment Default by PTAs



*Repayment amount shall include LPS @1% per annum in addition to the SBI's 3 years MCLR prevailing on the date of disbursement, compounded annually.

ii. Invocation of DDM through RBI

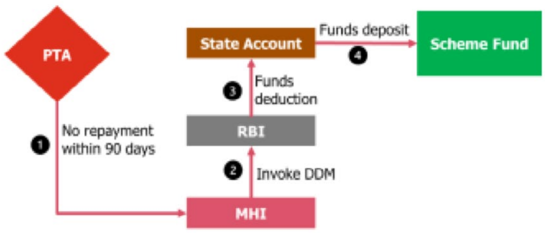


Figure 6: Overview of PM-eBus Sewa-Payment Security Mechanism Scheme (Source: Ministry of Heavy Industries, Government of India)

WHO WILL BE ELIGIBLE?

The major eligibility criteria as per the Gazette notification for STUs/SPVs/OEMs/operators to avail PSM are given below:

- STUs/SPVs adopting the GCC model for e-bus procurement in alignment with the Scheme Guidelines.
- Parent States/UTs registering a DDM with the RBI to enable their STUs/SPVs to access Scheme Funds throughout the Scheme's duration.
- Procuring and operating e-buses through aggregation by CESL under any Government of India, State Government, or Union Territory scheme, provided the Concession Agreement (CA) complies with the Scheme Guidelines.
- OEMs/operators entering CAs with STUs/SPVs being eligible to access Scheme Funds.

[1] Ind-Ra is a leading agency in India providing credit rating and research services.

IMPLICATIONS OF THE PM-EBUS SEWA-PAYMENT SECURITY MECHANISM SCHEME

Integration of PSM in a national level scheme for procurement and operations of e-buses has been a bold step taken by the Government of India. It shows the commitment of the government towards addressing the concerns raised by the stakeholders of the e-bus sector in the country, especially the OEMs/operators. Some of the key implications of the PM-eBus Sewa-Payment Security Mechanism Scheme have been listed below:

PROMISING OUTCOMES

- STUs/SPVs are obligated to repay the full amount disbursed from the Scheme Fund, along with a Late Payment Surcharge (LPS) at 1% per annum, within 90 days of disbursement which helps to recoupment of the fund scheme and ensure sustainability of this initiative.
- India Ratings and Research (Ind-Ra)[1] projected earlier in the year 2024, that the Government of India's introduction of a Payment Security Mechanism (PSM) in the interim budget 2024 would play a pivotal role in the enhancement of competition in the concession market of electric buses (e-buses)[xii]. This would in return play a crucial role in the reduction of per kilometre rate for operations which is an important determining factor in the bidding process.
- PSM would serve as a lucrative pull factor for investments from private players of the e-bus ecosystem due to creation of a dedicated corpus fund that assures timely payment to the operators/OEMs in case of default by STU/SPV.
- PSM would encourage smaller cities with little to no experience in managing public transport to participate in the PM-eBus Sewa-Payment Security Mechanism Scheme as it would serve as a temporary cushion that would give assurance to the lender.
- The scheme includes fund for training and capacity building which is a highly welcoming initiative as that could be efficiently utilised for upskilling of personnel with the latest trends and technologies in the domain.
- Focus on development of technology-based platform, and Information, Education and Communication (IEC) is commendable as it is a crucial step towards creating provision for exploring and implementing the latest technology in the field.

- PSM has the potential to act as a catalyst in accelerating the procurement, deployment and operations of e-buses in the country due to the deterrence of the credit risk factor.
- The absence of financial data and transaction history for transit agencies hinders lenders' ability to assess risks in the sector. The proposed PSM scheme should also focus on establishing a database of payment histories and, where possible, credit ratings for participating agencies. This would improve the bankability of projects by enabling a more informed risk assessment framework.

CHALLENGES

- India follows a federal governance structure, and while the detailed Standard Operating Procedure (SoP) for the scheme is still being prepared, a lack of complete clarity and differing political ideologies could prevent some state governments from participating in the PM-eBus Sewa-Payment Security Mechanism Scheme. This poses a significant challenge for the Central Government, as the scheme is still in its early stages of implementation and yet to demonstrate its benefits.
- Delays in payments to operators/OEMs stem from the inadequate integration of technology, like the Intelligent Transport Management System (ITMS), leading to heavy reliance on manual labour and bureaucratic inefficiencies. While the scheme emphasises upskilling personnel with the latest technological trends, it does not clarify whether the training will be confined to educating officials on the mechanisms and procedures for participating in the scheme, or if it will also include broader capacity building to enhance skills for the day-to-day operations of e-buses.
- The scheme would provide a cushion to ensure timely payments to operators/OEMs; however, it would not address the ongoing issue of financial instability and the reliance of STUs/SPVs on Central and State Government funding.

ASPECTS TO PONDER UPON

- The Standard Operating Procedure (SoP) for the PM-eBus Sewa-Payment Security Mechanism Scheme has not yet been made public. If the detailed framework of how the scheme will operate is disclosed, it could foster transparency and create an opportunity to gain the trust of states that are hesitant to participate in the scheme.

- The lack of or inefficient functioning of the ITMS remains a significant challenge for many STUs/SPVs, resulting in billing and accounting processes being handled manually, which is time-consuming. By placing a stronger emphasis on the integration of ITMS, along with providing overall training and capacity building for officials on e- bus operations, the process could become much more efficient in the future.
- The absence of financial data and transaction histories for STUs/SPVs limits lenders' ability to evaluate risks in the sector. If the scheme focuses on establishing a comprehensive database of payment histories and credit ratings for participating agencies, it could improve the bankability of projects by enabling more informed risk assessments

CONCLUSION

The e-bus segment of the market has gained a renewed momentum after the disruption caused during the Covid-19 pandemic and the boon in disguise has been India's revitalised strategy to adopt a holistic approach of promoting electric vehicles, especially e-buses, and in the process promote the use of public transport. India has been prompt in responding to the challenges and the need for reformative change to attract investment from relevant stakeholders of the e-bus ecosystem. PSM, is an affirmative step towards addressing bankability concerns for lenders and borrowers. It will aid the scaling up of services and strengthen the private sector's ability to cater to the high decarbonisation ambitions of the sector. Through the PM-eBus Sewa-Payment Security Mechanism Scheme, India has yet again proved its sincere commitment towards promoting sustainable green mobility by effectively addressing the challenges faced by the private players and successfully creating a roadmap to attract more investments in the sector by reducing the risk factors involved.

[i] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1945472

[ii] https://www.convergence.co.in/public/images/electric_bus/Grand-Challenge-Case-Study-Final-Web-Version.pdf

[iii] https://www.researchgate.net/figure/Gross-Cost-Contract-Model-Source-C40-TUMI2023_fig3_387867503

[iv] https://heavyindustries.gov.in/sites/default/files/2024-10/psm_gazette_notification.pdf

[v] https://transformative-mobility.org/the-grand-challenge-an-aggregated-approach-to-e-bus-procurement-in-india/

[vi] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1987804

[vii] https://pmedrive.heavyindustries.gov.in/

[viii] https://www.deccanherald.com/india/indian-bus-makers-shun-government-contracts-over-payment-labour-concerns-1211714.html

[ix] https://pib.gov.in/PressReleseDetailm.aspx?PRID=1984578&reg=3&lang=1

[x] https://www.ceew.in/cef/quick-reads/explains/how-payment-security-mechanism-works

[xi] https://heavyindustries.gov.in/pm-e-bus-sewa-payment-security-mechanism-psm-scheme

[xii] https://energy.economictimes.indiatimes.com/news/power/indias-e-bus-market-set-for-boost-with-new-payment-security-mechanism-ind-ra/107737099#:~:-text=New%20Delhi%3A%20India%20Ratings%20and,kilometre%20fee%2C%20which%20is%20a

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Disclaimer:

Payment Security Mechanism (PSM) is a new initiative. The paper has been prepared based on the data available in the public domain as on 21 March 2025. In case of further notifications and changes to the initiative, UITP may consider adding an addendum to the paper.

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