Financing options for low-carbon transport development in Asia

Decarbonizing Transport Sector towards Net Zero by 2050 @ High-Level 14th Regional Environmentally Sustainable Transport Forum in Asia

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Inadequate urban bus service supply

Currently, the bus sector in India is lagging behind other modes. It is not developing either in capacity or quality and is losing market share.

This is happening throughout India, indicating fundamental problems in the overall framework rather than weaknesses in individual States.

Major supply gap	**Bus provision is 1/3 to 1/5 of needs in cities**
Low quality of services	**Aging fleet with limited customer focus**
Low fleet growth	**Growing at half of competing modes**
Limited public resources for scale up	**Public operators on survival mode**

Potential Impacts in numbers

A full program that would scale up urban bus service delivery by adding 150,000 buses, would have a large impact across all sustainability metrics.

{a conservative reduction factor of 30% compared to existing average STU ridership value is applied}

Increased bus services lead to

Improved mobility

A fleet of 150,000 urban buses can deliver 86 million daily trips or 320 billion passenger kilometres per annum, at a cost lower by 63% than the alternative, **saving US$12 b** per annum.

Efficiency

Over **US$8.4 b per annum in vehicle operating cost** savings
Postponed infrastructure upgrade (better use of road space)
4,700 million fewer litres of fuel consumed per annum

Safer mobility

8,400 fewer lives lost in road accidents per annum

Greener transport

6.5 million tons of C02 emission avoided per annum
8,900 tons of PM emission avoided per annum

Private investments and employment

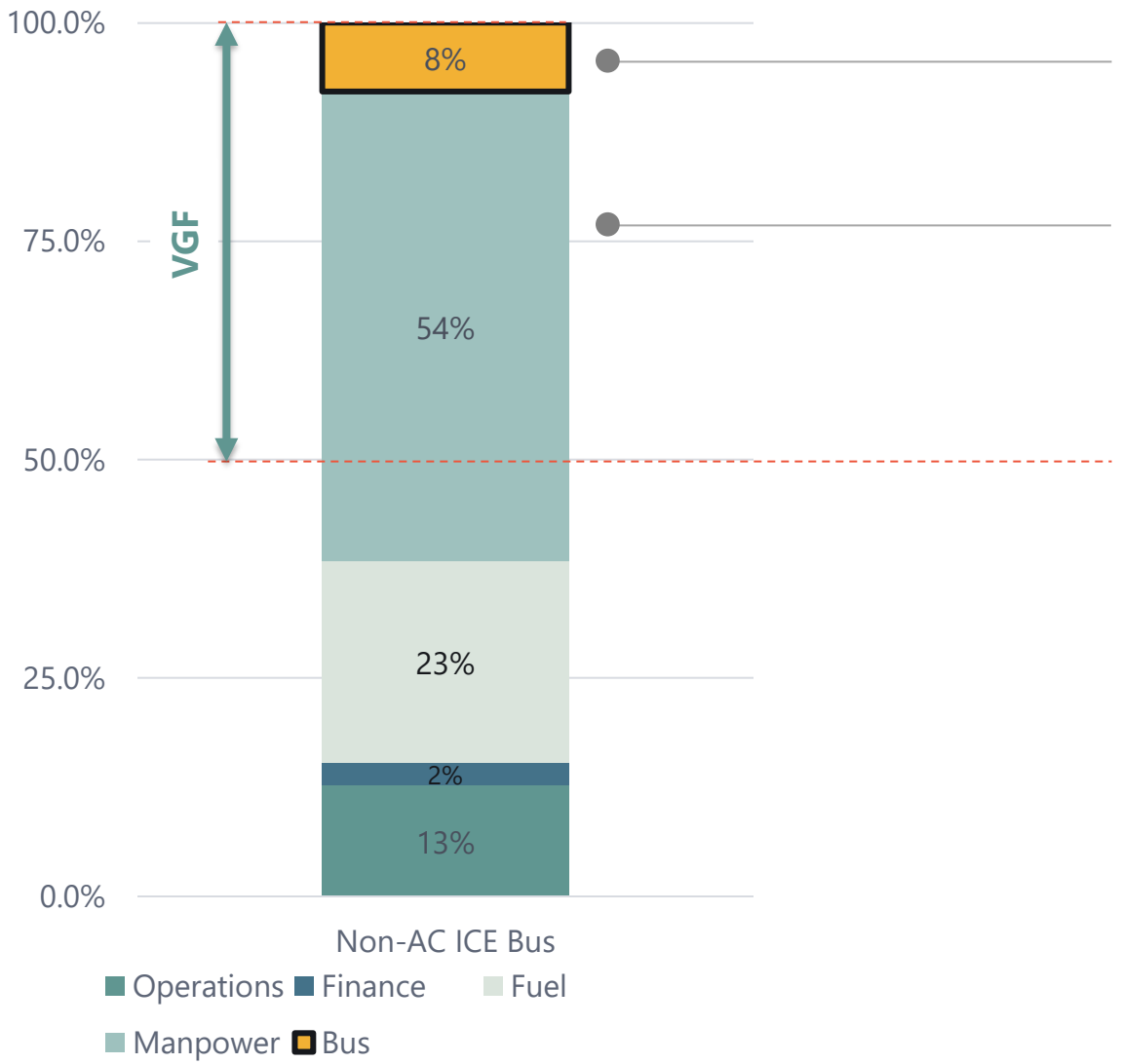
US$15 b in private investments in buses
Over **780,000 jobs** in the service industry

Key Required Shifts

Refocus from bus purchase to bus services with sustainable funding

Historically, the dialogue of agencies and operators has focused on the need for more buses. While buses are undersupplied, buying more buses does not address the sustainability question, as bus capital costs are a small percentage of overall lifecycle costs. Sustainability requires a refocus towards bus operations and on the cost of service delivery compared to revenues.

From CAPEX to OPEX for Urban Bus Operations: Re-focus Financing for Sustainability



Bus cost is less than 10% of total operating cost over a 10 year period

Salaries for the crew account for a majority of the total cost

Average recovery of cost via ticket collection

Need for viability gap financing (VGF) to ensure buses purchased can be operated throughout life-time

Roadmap for State Urban Bus Program (SUBP)

Key questions and process to follow to design an urban bus program and determine the level of support required under a SUBP.

Focus on key requirements: customer needs, economic efficiency and sustainability.

1. **Define the vision** for the State detailing the level and design of bus service to be provided across different tiers of cities

2. Evaluate the **mode of delivering bus services** i.e. share of in-house and outsourced

3. For in-house operations, **consider efficiency measures** to increase utilization and reduce costs (conductor less - flexwork)
For outsourced services, **adopt best-in-class practices** to generate private sector interest
Develop driver availability through training to align salary increase with inflation

4. Evaluate **total viability gap funding required** based on cost of achieving vision based on model of delivery

5. **Identify current and new sources of revenue** to balance VGF requirements on a sustainable basis**. If required, iterate on vision and business model** to achieve balance and finalize **Long Term Funding Mechanism.**

6. **Announce state policy and program,** put in place fare policy, funding mechanism, State Technical Directorate, arms-length arrangements with STU; and empower cities**.**

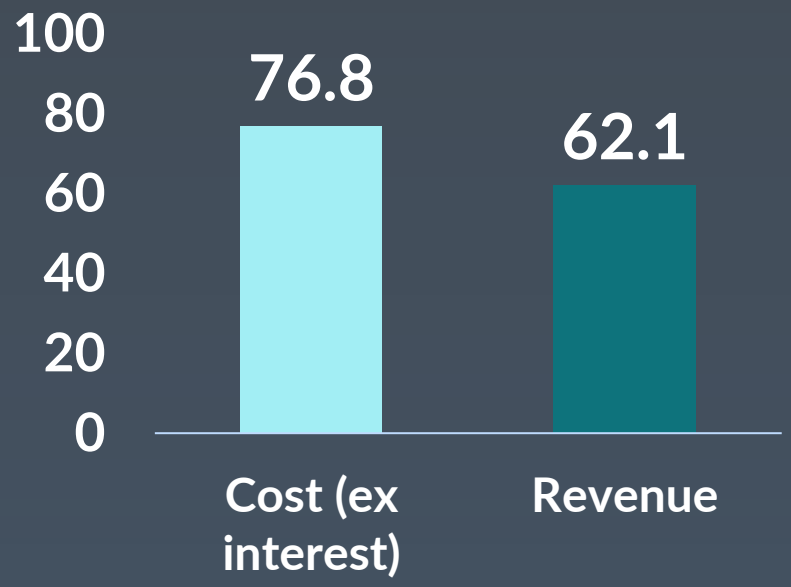
Opportunity from bus to e-bus

	Impact of adding 1000 Urban buses	Impact of adding 1000 e-buses
Improved mobility	600,000 daily trips or 2 billion passenger kilometres per annum, at a cost lower by 63% than the alternative, **>> saving users INR5600 cr** for 10 years	Similar but not impacted by future fuel price increase
Efficiency	Postponed infrastructure upgrade (better use of road space) **310 million** fewer litres of fuel consumed for 10 years	Save 600 million litres of fuel over 10 years [AC option]
Safer mobility	**560** fewer lives lost in road accidents for 10 years	Similar
Greener transport	**400,000 tons** of C02 emission reduction over 10 years **590 tons of PM** emission reduction over 10 years	**600,000 tons** of CO2 emission reduction over 10 years [including grid] [AC option]
Private investments and employment	**INR700 cr** in private investments in buses Over **5,200 jobs** in the service industry	**INR1600 cr** in private investments in buses and accelerate industry development

Challenge

Addressing the viability gap for urban buses

INR14.6 per km



Urban bus services by STU ran an average deficit of INR 14.6 per km pre COVID ex interest (CIRT 2017-2018)

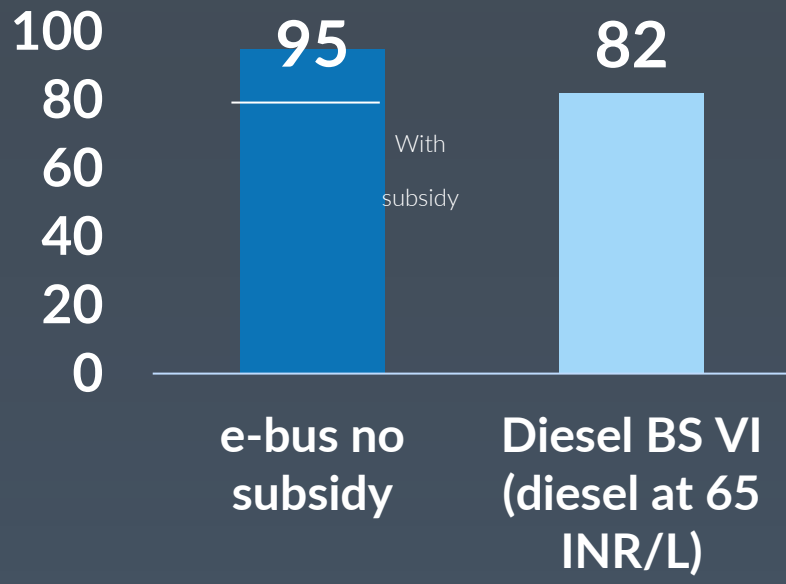
Beyond the CAPEX Support, OPEX Support is needed

Min INR1 Crore per bus (real term)

70,000 km*10 year*15INR

Addressing TCO GCC gap between electric and diesel buses

INR13 per km



Estimated GCC Cost for 70,000 km per year intracity

*Value varies (Spoctech/Steer 2021)

Unlocking E-Bus through bankable solutions

Contracting

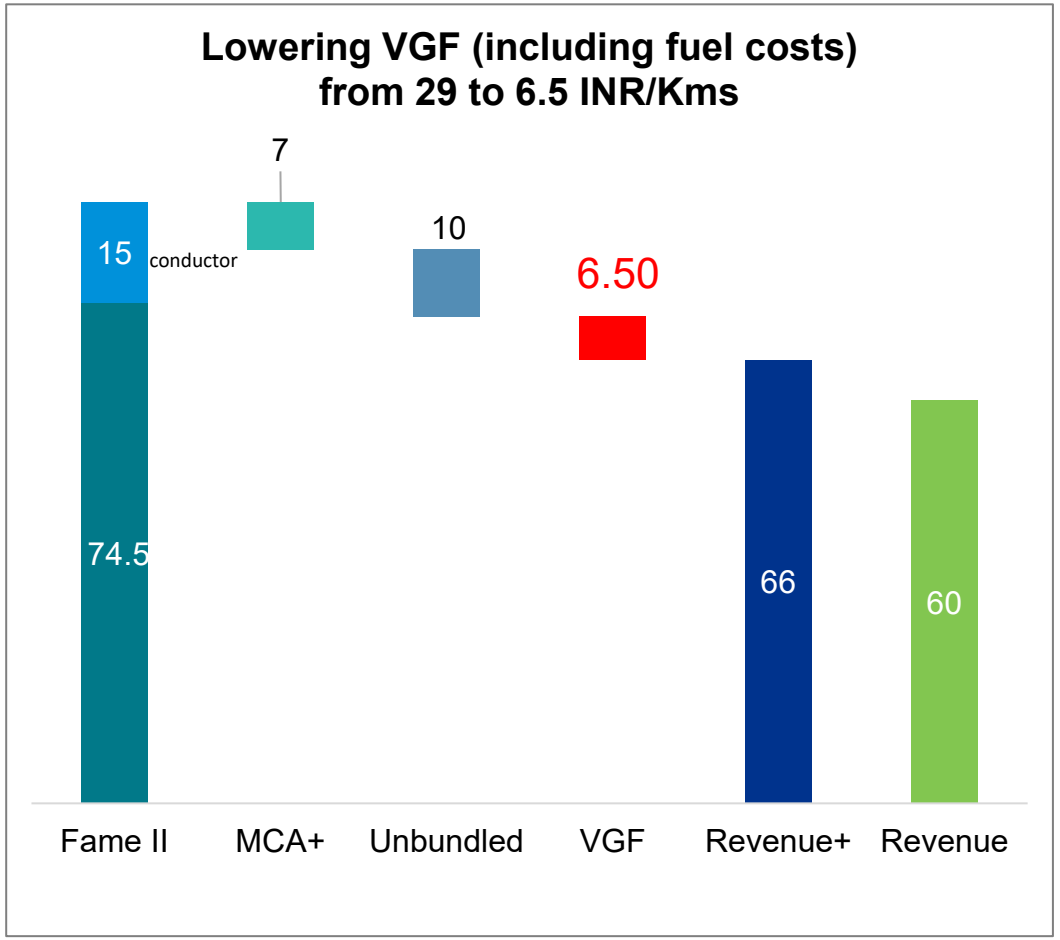
Reduce Viability Gap Funding through efficiency gains

1. **Sound contracting:** Enhance procurement/MCA: Costs **- 10%**
2. **Scale:** Purchase at scale/unbundled models: Costs **- 10%**
3. **Good planning:** better use Revenues **+ 10%**

Financing

Lower Risk to banks to reduce capex financing cost (2%)
(e.g. World Bank Group instruments)

1. **Payment Security:** Guaranteed payments (who pays? mechanism)
2. **First Loss Facility:** In case of loss on loans for buses under FAME II contracting with CESL, coverage of [20%] of Loss

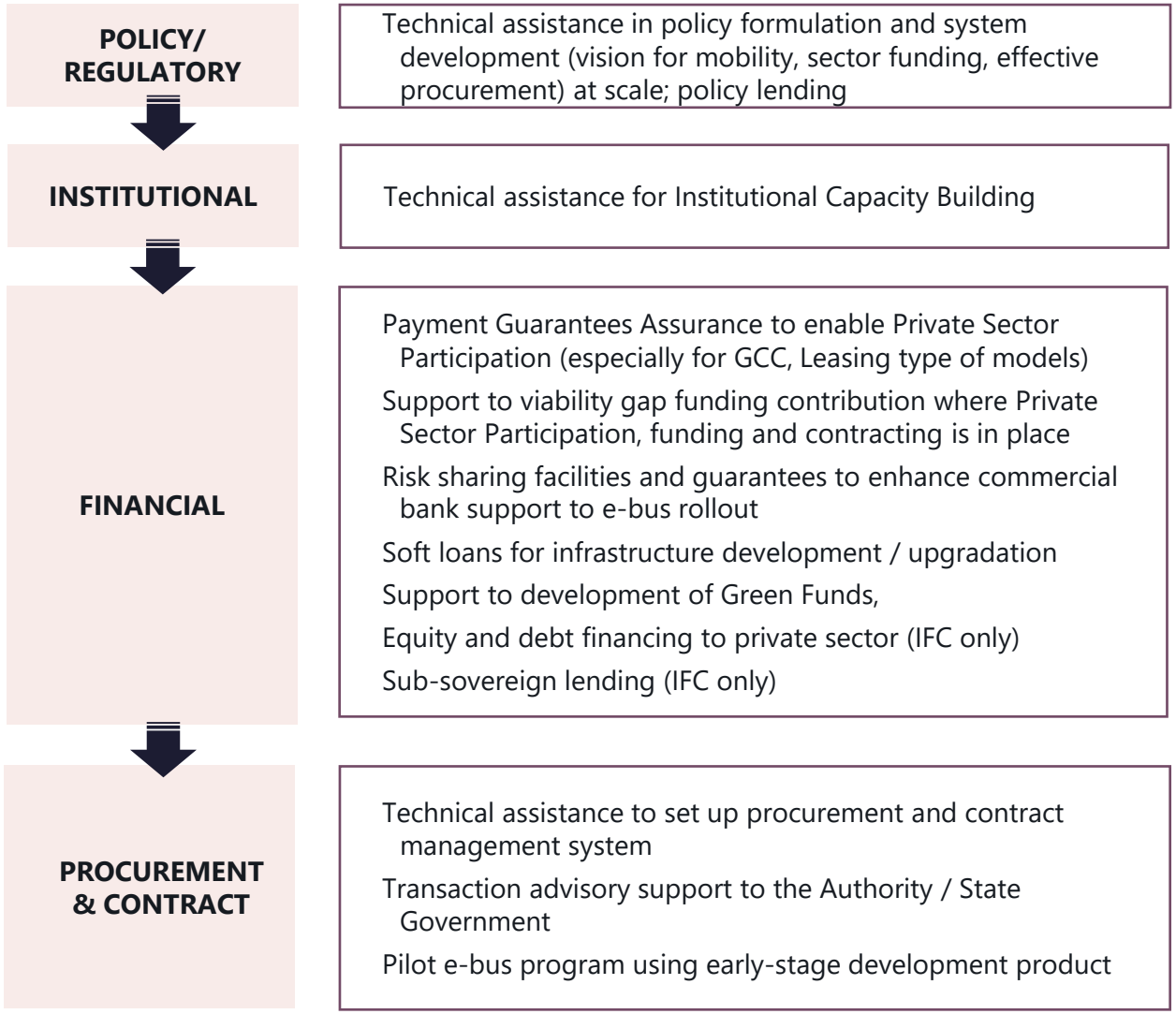


Leverage the detailed work by World Bank Group and address those in up to lighthouse cities at scale prior to replication

Key Assumptions: [to be tailored for each city]
Average daily distance travelled is assumed to be 200 km per day (347 days per year)
For EVs, no road registration fee is assumed for computation of EVs
FAME-II incentive of INR 20,000 per kWh of battery capacity is taken into consideration
State Govt incentive of upto INR 10,000 per kWh of battery capacity is taken into consideration
Debt to equity ratio of 80:20 is assumed with post tax ROE of 14% and interest rate of 10%
MCA+ and Unbundled, Revenue+ based on World Bank (2021)

WBG POTENTIAL SUPPORT

FROM WHAT TO HOW TO



In Summary:
Financing solutions can be an important part of the solution for transitioning to net-zero in transport. However

- Financing solutions need to be tailored
- Built on a sound analysis of the fundamental financials
- Complemented by the right policy framework and well functioning institutions