



Himachal Road Transport Corporation



INTRODUCTION OF ELECTRIC MOBILITY IN HRTC





State government to finalize the technical specification in consultation with Department of heavy industry .

- DHI on 8th January 2016 approved partial funding to the extent of 75% subject to maximum 1.5 Crore per bus for 25 nos. electric buses .
- One of the condition of the approval was that State government to finalize the Technical specification in consultation with DHI.
- On 10.02.2016 Global EoI invited for the electric buses (having overall length of 9-10 mtrs. And 900 mm floor height) for operation on hilly terrain. Last date for submission of response was 15th March 2016.



In response to EOI , 7 companies shown their interest in electric buses and submitted detail of Electric buses

- M/s Tata Motors Ltd.
- M/s Volmac Engg.Pvt Ltd.
- M/s EV Motors India Ltd.
- M/s Mahindra & Mahindra Ltd.
- M/s Ashok Leyland Ltd.
- M/s JBM auto ltd.
- M/s Goldstone Infratech Ltd.



Himachal Road Transport Corporation



- On 17th march 2016, the detailed specifications offered by above companies was forwarded to DHI and others for finalization of Technical specifications of these buses
- In the mean time Hon'ble NGT its interim order of dated 28th March 2016 , concerning these buses ordered to finalize the specifications in the coming week.
- DHI convened a meeting on 12.04.2016 at Delhi, to finalize the technical specifications of these buses.
- In the meeting Technical specifications received by HRTC in EOI from various vendors, HRTC tentative requirements of these buses for operation on hilly terrain (Manali to Rohtang), draft specifications proposed by ASRTU and by SIAM was deliberated at length

Himachal Road Transport corporation

The meeting was called by DHI to finalize technical specification on 12-04-16 at Delhi.



Himachal Road Transport corporation

- On 11-05-2016 Tender/RFP document for purchase of electric buses was floated.
- prebid meeting was held on 30-07-2016 at Himachal Bhawan New, Delhi.
- Following interested bidders participated /raised the prebid queries:-
 - M/s Ashok Leyland.
 - M/s Mahindra & Mahindra.
 - M/s Impact(KPIT)
 - M/s Goldstone Infratech Ltd.
 - M/s Tata Motors Ltd.
 - M/s JBM auto Ltd.
- Pre-bid queries were forwarded to ASRTU ,CIRT, SIAM, ICAT, Director(Auto) etc on 3rd. August 2016 to offer their valuable comments/suggestions by 12.08.2016.



Himachal Road Transport Corporation



•Principal Secretary (Transport) to the GoHP constituted a committee for Conducting trials of electric bus from Manali-Rohtang , as under:-

- | | |
|--|----------|
| • Sub Divisional Officer© , Manali | Chairman |
| • Deputy Superintendent of Police, Manali | Member |
| • Regional Transport Officer , (Flying squad) Kullu | Member |
| • Director, Environment, science & technology | Member |
| • Divisional Manager(Technical)/works Manager.
Himachal road Transport corporation shimla | Member |
| • Manager (Technical) Divisional Workshop
Himachal Road Transport corporation ,Mandi. | Member |
| • Regional Manager, Kullu | Member |
| Secretary
Himachal Road Transport Corporation | |

Expert Members:-

The representatives of the following independent agencies /experts will also be associated in the committee who will evaluate the technical parameters of the electric bus during this trials:

Indian institute of Technology Delhi/ Mandi,NIT Hamirpur.

OR

Central institute of road Transport , Pune.

Himachal Road Transport Corporation



As per the Terms and Conditions of the RFP , 2 vehicle manufacturers conducted the trial on Manali-Rohtang section in presence of committee constituted by GoHP

- M/s Goldstone Infratech Ltd. w.e.f 20.10.2016 to 2.11.2016
- M/s Ashok Leyland w.e..f 05.12.2016 to 20.12.2016.

Himachal Road Transport Corporation

- **Technical & Financial bid of Electric buses was opened on 06.01.2017 and 09.01.2017.**
- **Bids were evaluated by a committee that recommended to award the contract in favour of L-1 based on maximum marks awarded as per Bid evaluation sheet .**
- **Both the bidders were called for final negotiation on 22.02.2017 and after negotiation Letter of Award has been issued in favour of M/s Gold Stone Infratech Ltd. dated 22.02.2017 for 25 Electric Buses along with chargers and AMC .**
- **On 22.02.2017 wrote letter to Director (Auto), DHI to release the funds towards financial support to the extent of 75% of the cost for procurement of Electric buses.**
- **Purchase order as per RFP issues on 01-04-2017**

M/S Goldstone Electric Bus During Trial at Manali – Rohtang w.e.f 20.10.16 to 2-11-16



Ashok leyland circuit bus put on trial
w.e.f 5-12-16 to 20-12-16



Himachal Road Transport corporation



RFP Specifications

TECHNICAL SPECIFICATION OF ELECTRICAL BUSES IN THE REP of HRTC

Technical Specification For Electric vehicles	
Vehicle Specification Description	M3 category, Standard Type-II(NDX) Bus
Drive train Specification	
Motor/Generator Description	Integrated Motor Generator
Max Power	Performance based as per UBS-II
Continuous Power	Performance based as per UBS-II
Normal Operating Range	Minimum 150 km(rated), Maximum 170 kms(rated)
Max Torque	Performance based as per UBS-II
Angle of Approach	Between 15°-20°
Angle of Departure	Not less than 11°
Transmission/Gear drive	Manual/Automatic as per OE standard fitment
Specification	
Specification	Advanced Chemistry /(Li-ion)
Electrical Energy Consumption	Upto 1.75 kwh/km(rated)
Batteries	24 Volt/2*12V. 160 Ah
On Board Charger	Should charge within 6 hours to full capacity of batteries.
Off Board Fast Charger	Should charge within 75 minutes at one of the two terminus for full capacity of batteries.
Life	Minimum 5 years & should be part of AMC while quoting for the tender.
Electrical Regeneration	Required.

Himachal Road Transport corporation...2

Vehicle Performance Specifications	
Max Speed	Min 75 kmph @ UBS II
Restart Gradeability	Minimum 17% as per UBS II
Acceleration 0-30 Kmph in second	< 10.5 sec.
Brakes	
Brake system	Dual circuit full air S-cam drum brake with
Steering	
Steering System	Power Assisted
Suspension	
Suspension type	Parabolic leaf spring at Front and Rear/Air suspension at rear
size	9.00 X 20 R Preferred. However as per OE standard fitment.

Additional Fitments	MULTIPLEXING ITS-AS PER UBS-2/MoUD SPECS
Wiper System	As per UBS II specifications
Voltage	As per UBS II specifications
Other Specification	Standard switches and accessories
Vehicle Specification	
GVW	As per CMVR
Overall length	Upto 9.5 meters
Wheel base	4200-5000
Ground clearance	As per UBS II specifications.
Seating \Capacity (Seating)	35-44 Seats + D
Floor Height	900 mm
Bus Body-AIS 052 and MoUD-II Compliant	
Body Description	Type II as per AIS 052
Multiplexing	As per UBS II specifications.
ITS	As per UBS II specifications & to be integrated with the existing ITS system at HRTC.
Doors	2 Nos-Flap Type; one behind front axle, one behind rear axle

BUS BODY

i) Dimension of the bus as per CMVR in mm

ii) Overall length of the fully built bus should be upto 9.5 meters.

iii) Galvanized steel tubular structure with anti-corrosive painting/treatment.

iv) Front and Rear panels should be of aesthetically designed with aerodynamic features.

v) Inner panels- light weight PVC laminated.

vi) Bus should be painted with 2k paint as per colour choice/graphics provided by HRTC.

vii) Emergency exit door/window should be provided as per AIS 052.

viii) Bus body should have type approval as per AIS 052.

ix) Roof grab rail in two rows to be provided with U bent at front.

x) Spare Tyre position to be provided as per OE standard fitment confirming to AIS 052.

xi) Retro reflective 50 mm tape white at front yellow on sides red at rear should be provided.

Himachal Road Transport corporation...4

Luggage Racks

i) Tubular hat rack/As per OE fitment confirming to AIS 052 to be provided.

Bus should be fitted with

i) Fire extinguisher conforming to CMVR As per AIS 052 to be provided.

ii) First Aid Box.

iii) Jack and wheel spanner. Tommy for lifting the bus to change tyre and tool kit.

iv) Binding type full width sun visor for front windshield glass should be provided. Passenger doors-Double door one on behind front axle and one on behind rear axle should be provided. Flap type door. Width of aperture should be as per AIS 052.

v) Manual adjustable two rear view mirror (one left hand side and one right hand side) to be provided. Passenger saloon area mirror to be provided.

vi) Manufacturer should make alterations/modifications if suggested by the Transport department on FOC basis.

vii) All the other mandatory accessories as per CMVR shall be provided.

viii) Arm rest should be fitted for seat opposite to passenger doors.

ix) Seats Nos stickers should be on side walls in red colour.

x) Safety belt to be provided as per CMVR.

Himachal Road Transport corporation....5

Model should comply with certificates

i) Fully built buses should comply to the requirement as per bus body code (AIS 052) and CMVR regulation for operating of bus on hilly terrain.

Passenger Seats.

i) Seating layout 3X2 High back seats/2X2 for reclining seats.

ii) Seats upholstery should be of fire retardant as per bus body code. Passenger seat should be placed in such a way that passenger sitting on seat should be peep out.

iii) Number of seats :- 35-44

iv) Width of seats will be 810 mm (02 seats), 1220 mm (03 seater bench) for 3 X 2 ordinary High back seats.

v) Gang way should be as per Bus Body Code.

vi) Leg space should be as per bus body code.

vii) Seat pitch should be as per bus body code.

viii) Driver seat + belt as per bus body code.

ix) Tool box be provided as per OE standard fitment.

Spares After sale service

The bidder shall confirm in writing adequate availability of spare parts and after sales services within state of HP including remote areas in the bid by furnishing an undertaking on their official letter head.

Guarantee/Warranty

Manufacturer shall give the warranty of the bus for its structure and chassis aggregates minimum 3 years or 3 lacs kms which ever is earlier.

Thank You