Subject: Call For Proposal for Development of Electric Vehicles (EVs) Sub-Systems

Worldwide automotive industry is quickly shifting from traditional fuel based technologies to eco-friendly technologies such as battery based drive train for development of Electric Vehicles (EVs) due to fast depletion of fossil fuel and to reduce impact of transportation on environment and climate change. Keeping in view the technological requirements of EVs and to increase the local manufacturing of the subsystem of EVs in India, a short term R&D programme is being initiated by Ministry of Electronics and Information Technology (MeitY) for the technology/product development for EVs in the areas such as motor, controller, converters, Chargers etc,. This initiative is expected to deliver indigenous EV subsystems at an affordable cost following the standards with quality.

Objectives: To develop the Electric Vehicle sub-systems in the areas of Electric motor, controller, converters Chargers etc, ranging from small to Large vehicles etc., indigenously. The expected outcome i.e. technology/product has to be cost effective, quality competitive and ready for commercialization. The Total duration of the Project should be of 24 months or less (including product development and commercialization), but the prototype must be ready and testing should start within 18 months (The broad specifications of the products to be developed are placed at Annexure-I).

Implementation modalities: EV sub-systems development has to be taken up in consortium mode comprising of Government institutes/ R&D organization (recognised by DSIR) for the design and development, industry to commercialize it and vehicle manufacturer to use the developed products in the manufacturing. The Government institutes/ R&D organization(recognised by DSIR) would lead the projects and participating agencies are expected to contribute in the said development.

Proposals submission date: Proposals as per format (given at link*:http://meity.gov.in/writereaddata/files/PROFORMA%20FOR%20SUBMITTING.pdf* and Terms and Conditions given at link: *http://meity.gov.in/writereaddata/files/Terms%26conditions.pdf)* may be submitted through email/ hardcopy within a month after publishing it on MeitY website at the following address*:*

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The proposals should describe in details the idea, the proposed development plan along with the deliverables and timelines.

The intellectual Property Rights for the development work will be as per the policy of MeitY.

Note: MeitY reserves the right to accept or reject any proposal without assigning any reason thereof.

Annexure-I

1.1 Home or Public AC Outlets for EV Charging :

	Charging Options	Input to Charger	Charging Power	Applicable Vehicles	Standard
AC Charging	Home Charging	230V AC/ 1Phase -16 A	3.3 kW	Cars; 2W, 3W	AC-001, AIS 138, Level 1
		230V AC/ 1Phase -32A	6.6 kW		Mainly IEC standard , L2
		440V AC/ 3Phase -16 A	11kW		L3
		440V AC/ 3Phase -32 A	22 kW		
	Public Charging	44O V AC/ 3Phase -63A to 200A	40kW 80kW	Cars, Light Commercial Vehicle & Buses	L3

1.2 Portable or Public DC Chargers:

Vehicles	Input to Charger	Charging Power	DC Output	
2W/3W	230V AC/ 1Phase -5A	250W to 1kW	48V, 60V, 72V	Portable Chargers
3W and small Quadricycles	230V AC/ 1 Phase -16 A	1kW – 3.3 kW	48V, 60V and 72V	Portable Chargers
4W	440V AC /3P / 32 A	10 kW to 15kW	48V, 72V, up to 100V	DC-001
	440V AC /3P / 63 A	Up to 80kW	300V to 750V	CCS2 / GB/T/ CHADEMO
4W and larger vehicles	440V AC/ 3-Phase upto 400A	60kW to 250 kW	300V to 750V	CCS2/ GB/T / CHADEMO

Standards are to be followed in the above. Payment Systems using standard Payment Gateways like UPI / BHIM or Bank Gateways should be followed.

1.3 DC- DC convertor:

	Hybrid /2 W/ 3 W	**Low Voltage Architecture Cars / Mini CVs**	**HV -1 CARS / LCVs**	**HV -2 Buses and Trucks**	**HV Accessories**
Input Voltage	35 -72 V	< 100 V	240 - 350 V	450 - 800 V	450 -800 V
Output Voltage	13.5 /14	13.5 /14	13.5 /14	13-26-28	60/72
Power W	150	1000	1500	3000	
	350	1500	2000	6000	6000
	500	2000	2200		
	800				
Output Current A	11	71	107	115	100
	25	107	143	231	
	36	143	157		
	57				

1.4 Electric Motors and Controllers:

- PMSM Motors and Controllers
- Motors of different capacities : 1KW, 5KW, 10KW, 20KW, 30 KW, 50 kW, 100 KW, 125 KW, 200 kW, 300 kW

1.5 Battery:

I. Battery Management System