No. 12(27)/2015- AEI (Vol-II)

To,

As per list attached.

Sub: Minutes of the 6th Meeting of the Project Implementation and Sanctioning Committee (PISC) under FAME-India Scheme held on 23.03.2017 at 3.30 P.M. in New Delhi under the Chairmanship of Secretary, Department of Heavy Industry.

Sir/Madam,

I am directed to forward herewith a copy of the minutes of the 6th Meeting of the Project Implementation and Sanctioning Committee (PISC), under FAME-India Scheme, held on 23.03.2017 at 3.30 P.M. in Udyog Bhawan, New Delhi, under the Chairmanship of Secretary, Department of Heavy Industry for information and necessary action.

Yours faithfully,

( Ajay Kumar Gaur)

Under Secretary to the Govt. of India

Ends: As above

Copy to:-

1. PSO to SHI.
2. PPS to AS & FA(DHI)
3. PPS to JS(VS)
4. PPS to JS(MoRTH), Transport Bhavan, New Delhi
5. Industrial Adviser (DHI)
6. Director, ARAI, Pune
7. DG, SIAM, New Delhi.
8. DG, ACMA, New Delhi.
9. Director, SMEV
10. Shri Sajid Mubashir, MS (IM-TAG), DST, New Delhi.
11. Director(Auto), DHI
Minutes of 6th meeting of the Project Implementation and Sanctioning Committee (PISC) held at 03.30 PM on 23rd March 2017 at Kaustubham (Conference Hall- Room No. 172), Udyog Bhawan, New Delhi under the Chairmanship of Secretary (Heavy Industry) to consider the projects recommended by TSC/ ISG of the project proposals received in the Department for grant under FAME INDIA Scheme.

1. At the outset, The Chairman welcomed all the participants. A list of the participants is attached as Annexure-I.

2. After a brief round of introduction of all the participants, Joint Secretary (Auto) initiated the discussion by informing the background/ activities of FAME India Scheme.

3. The Chairman then allowed commencement of the proceedings by taking up- projects one by one mentioning that the presentation by the Implementation Agencies of projects should be in brief highlighting (i) Intended Benefits; (ii) Outcome achieved so far; (iii) Timeline for completion of projects.

1. Proposal on Centre for Battery Engineering from IIT Madras was presented by Prof. Ashok Jhunjhunwala. The main objective of “Center for Battery Engineering (CBE) at TCOE, IIT Madras is to focus on Battery Engineering using cells of available chemistry”; Battery designing and Optimization (Price –Performance); Battery Management Systems: Optimum Utilisation and Performance of available batteries; Thermal Control systems: control and protection mechanisms; Development of test-equipment; Development of Battery chargers, Development and analysis of Secondary Use; Battery Swapping: feasibility and mechanism, Battery Recycling, Understanding Safety; Training and building knowledge among large number of people and Development of Education kits and training modules (One stop Technology Knowledge Centre for Batteries and promoting Industrial Academia joint innovation and commercialization) with the Objective Performance analysis and testing.

Dr. Prabhjot Kaur, from IIT Madras presented the C-BEEV proposal, with scope, uniqueness, objectives and plans of the Centre for Battery Engineering. The Committee was informed that the proposal is already supported by three industries and the commitment letters have been submitted to DHI. The funds have also been transferred by the industry to IITM. Outcome of the project is contributing to knowledge and skill development (New chemistry focused), some battery testing facilities set-up (Some work on cell-packaging and still smaller work on cell to pack) and skills developed may contribute during battery cell-manufacturing. Total Estimated Budget for five years: Rs. 19.50Cr and for 6th and 7th year: Rs. 3.75Cr and Demand from DHI–Total: Rs. 15.06Cr, for five years and Rs. 2.15Cr for 6th and 7th year. After extensive deliberations on the project details & outcome to be achieved vis-à-vis automotive industry, the Committee observed that the proposal needs to be re-worked on the following:
i. Other Industries should also be invited to participate in the Centre by inviting EOI.

ii. The participating industry as well as DHI will be on advisory committee of the centre for development work carried out using the funds from DHI and the participating industry. The participating industry should not have any exclusive rights on the technology developed; they can get technology at certain concessions to be decided by the advisory committee;

iii. The learnings coming out of the Centre should be in public domain through publications.

Subject to above comment, Committee approved the proposal for standard under FAME India Scheme.

2. Proposal received under IMPRINT initiative of MoHRD - Hierarchical Nanostructure Carbon Materials Derived from Candle Soot and Graphene for High Rate and High Performance Electrodes for Automotive Batteries and Supercapacitors [IIT, Hyderabad & ARCI, Hyderabad] from IMPacting Research INnovation and Technology (IMPRINT)/ MoHRD.

Project Proposal No. 7035 presented by Dr. Rao, ARCI, Hyderabad. The broad objective of this proposal is to develop low cost but high rate and high capacity enabled rechargeable lithium ion battery and super capacitor prototype for electric and plug-in hybrid vehicles. This project facility is for Research work and Product development. The Apex Committee of the IMPRINT in its meeting has requested the Ministries/Departments to consider the details proposal and give their concurrence for funding 50% of the project cost of these research projects. Total project budget is Rs.260.68 Lakhs and Demand from DHI- Total: 130.34/- Lakhs (1st Yr. - Rs. 61.46, 2nd Yr. - Rs. 48.26 & 3rd Yr. - Rs. 20.62).

Outcome of the project is full cell demonstration of candle soot derived carbon nanoparticles using coin cell prototype, high performance and high rate anode for LIB and super capacitors derived from candle soot, demonstration of the battery and super capacitor performance at pouch cell/cylindrical cell. Scaling up of the carbon materials up to kg level. Demonstrating optical hierarchical structure for enhanced electrochemical performance by tuning and Developing the prototype for the LIB and super capacitor using candle soot based hierarchical structure.

The Director (Auto) made a detailed presentation on this project. The committee decided that the proposal would be beneficial from the industry point of view. Hence this proposal has been sanctioned by the Committee.
3. Financial support for Uchhatar Avishkar Yojana (UAY) Project concerning
Automobile Sector- Development of Light Weight REEV (Range Extended Electric Vehicle)
with Renewable Energy based Fuel cell Range Extender (IISc, Bangalore through Ministry of
Human Resource & Development) from Centre for Product Design and Manufacturing- IISc
(Indian Institute of Science). Bangalore is presented by Prof A. Dev, CPDM, IISc. The main objective is
"To develop Electric Vehicle (EV) with minimum investment to keep its retail cost as low as possible
and Developing a viable plug-in electric version of a Tata Nano REEV (Range-Extended Electric
Vehicle) by optimizing its weight and ensuring that it meets or exceeds the standard set by the
current production vehicle in attributes such as vehicle Dynamics, NVH (Noise Vibration
and Harshness), Durability and Crash Safety through extensive use of advance CAE (Computer Aided
Engineering) techniques. Total Estimated Budget Rs. 120 Lakhs Demand From DHI- Total: Total:
30/- Lakh. However 25% industry contribution (in Total), primarily in sub-head (A) manpower (B)
consultant Balance will be funded under Uchhatar Avishkar Yojana (UAY). Outcome of the project is
Demonstrate a novel power train configuration for a fuel cell-based REEV in a compact
commercial car viz. Tata Nano and Demonstrate the power train configuration mentioned above for a
fuel cell-based REEV in a lightweight compact car i.e. a novel aluminium space frame-based
hatchback.

The Proposal was presented over phone by Prof A. Dev, CPDM, IISc, Bangalore. The
committee observed that the proposal would be beneficial from the industry point of view as
well for the public at large and also covered within the mandate of funding under FAME INDIA
Scheme. Hence, this proposal has been sanctioned by the Committee under FAME INDIA
Scheme.

4. The following proposals for deployment of Electric Buses by STUs were discussed in detail:

(i) Pilot Project for 150 Electric Buses received from BMTC, Bangalore;
(ii) Pilot Project for deployment of 100 Low Floor Electric Buses & Charging
    Infrastructure received from TSRTC, Hyderabad;
(iii) Pilot Project for 10 Electric Buses received from BEST Undertaking, Mumbai

The Committee was informed that the objective of this proposal is to envisions to deploy zero
emission Electric buses for public transport in line with State Govt.’s vision to embrace modern
technologies and green energy.

The Committee was informed by BMTC representative that it proposes to deploy electric bus
variant similar in configuration to currently operational 12 M AC Volvo Buses in BMTC. It was
informed that BMTC proposes to deploy Electric buses by way of Operational Model (OPEX),
whereby the private operator deploys electric busses for BMTC without affecting current BMTC
bus schedules and operations at a competitive per Km price for 10 years with further option to
extend by another 5 years in case BMTC so desires on mutually agreed terms & conditions. There
would also be no upfront investment from STU – only operational cost to be borne & paid n per
Km basis.
TSRTC also informed that their proposal is on similar lines of BMTC. The committee was informed that their proposal is for one-time financial assistance as Viability Gap Funding to induct 100 buses in TSRTC Fleet under gross cost contract (or hiring) model. TSRTC informed that there would be no upfront investment from TSRTC and only operational cost to be borne & paid on per km basis which would enable rapid capacity building helping TSRTC to be borne & paid on per km basis. BEST informed that their Pilot Project is for 10 Electric Buses.

Committee observed that the proposal needs to be re-worked and thereafter placed before the Committee. JS (MoRTH) and Prof. Ashok Jhunjhunwala informed that they are coming up with a scheme for deployment of Electric Buses by STUs in different States. The house was informed that STUs may wait for about a month for submitting their proposals to DHI under FAME-India Scheme after the guidelines for STUs are finalized by MoRTH.

The above three proposals were deferred by the Committee.

5. Project for Hybridisation of Commercial and Passenger Vehicles received from M/s. Altigreen Propulsion Labs - The project Proposal was for funding additional 4 models of vehicles under the FAME India Scheme @ Rs. 174 Lakhs (50% of total cost of Proposal). Since the technology has already been type approved and is available for marketing by the company, the Committee was of the view that further deliberations are necessary for the proposal. After deliberations on the project details, the Committee deferred a decision on the proposal.

6. The following proposals could not be discussed due to paucity of time. Chairman informed the house that the following proposals may be submitted for consideration by the Committee in its next meeting:

   i. Proposal from ARAI for Design & Development of AC-DC Combined Public Charging Station suitable for Indian Application under Technology Development;
   ii. Proposal of setting up 200 Charging Stations by Rajasthan Electronics & Instruments Limited (REIL), Jaipur;
   iii. Proposal for providing 75 AC Smart Charger by consortium of Mahindra REVA-OLDA Asia Electric
   v. Pilot Project for Electric Buses at IGI Airport received from Low Carbon Logistic Private Limited.

7. The summary of the decision taken on all the proposals considered by the Committee in this meeting are as per ANNEXURE-II.

8. The meeting ended with vote of thanks to the chair.

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LIST OF PARTICIPANTS

1. Shri Girish Shankar, Secretary (DHI) - In Chair
2. Shri Vishvajit Sahay, Joint Secretary (Auto-DHI)
3. Shri Abhay Damle, Joint Secretary, MoRTH
4. Prof. Ashok Jhunjhunwala, IITM
5. Shri Pravin Agrawal, Director (Auto-DHI)
6. Dr. Tapan Sahoo, Chairman FTG, SIAM.
7. Shri Pavan Sachdeva, M&M, SMEV.
8. Shri Anand Deshpande, ARAI.
9. Shri Alok Ray, SMEV
10. Shri Sharan Singh, Mahendra Electric.
11. Shri Bishwajit Mishra, Director, BMTC
12. Shri M. Ravinder, Executive Director, TSRTC
13. Shri R.K. Gupta, General Manager (REIL)
14. Shri Sanjay Krishan, Lithium Urban Technology
15. Shri Tariq Kamal, GM, IGI Airport.
16. Shri Kailash Mishra, Low Carbon Logistic (P) Ltd.
17. Shri S. Venugopalan, IIT Madras
18. Dr. Prabhjot Kaur, IITM
19. Shri Shalendra Gupta, Altigreen, Bangalore.
21. Shri Nikhilesh Mishra, CBEEV, IITM.
22. Shri Puneet Jain, CBEEV, IITM.

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<th>Project Budget (Rs.)</th>
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ANNEXURE-II
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<th>120/- Lakh</th>
<th>Bangalore</th>
<th>Rs. 130.34/- Lakh</th>
<th>Rs. 260.88 Lakh</th>
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| Extender
Energy based Fuel Cell Range Extender Vehicle with Renewable Electric Development of Light Weight
Superconductors for Automotive Batteries and High Performance Electrodes Graphene for high rate and Electrolyte
Carbon Materials Derived from Graphite/Soot and Hierarchical Nanostructure
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