

File No: I-22/2/50/2020-(P&E)
Government of India
NITI Aayog
(Energy Vertical)

SansadMarg, NITI Aayog
New Delhi – 110001.
Date:14/10/2020

Subject: Minutes of the meeting on “Protected Lithium Anode Cassette (PLC) for Solid-State Battery Technology”, held with the Inventus BioEnergy (Pvt.) Limited (IBE) under the Chairmanship of Dr. V.K. Saraswat, Member, NITI Aayog, on the 5th of October, 2020.

A meeting on “PLC for Solid-State Battery Technology” was held under the Chairmanship of Dr. V.K. Saraswat, Member, NITI Aayog, on the 5th of October, 2020 in the NITI Aayog, through Video Conferencing (the list of participants is enclosed as the **Annexure-I**).

2. At the outset, the Chairman welcomed all the participants to the meeting and invited the Inventus BioEnergy (Pvt.) Ltd (IBE) for a presentation on its proposal.

3. A presentation on the invention and Prototype Monolithic Protected Lithium Cassette (PLC) was made by Drs. S.R.S. Prabaharan (CEO and Founder Director, IBE) and S. Harinipriya (CTO-Head of Operations, IBE). The Chairman appreciated the presentation and the efforts to take the PLC prototype to commercial production and manufacturing in India. In response to the concern raised by Chairman on the utility of the PLC in conventional Li-ion batteries and recovery of Li from the products, the IBE mentioned the universal capability of the PLC to be used as an anode in primary & secondary batteries, secondary Li-ion rechargeable batteries, Li-Air, Li-S batteries and the complete recovery plan for the Lithium deposited as insoluble salts, via a closed loop operation.

4. The CEO, IBE, informed that the company had already submitted an Expression of Interest – to develop and scale-up Protected Sodium Cassette – to the Integrated Clean energy Materials Acceleration Platform (IC-MAP) of the Department of Science and Technology (DST). The consortium included the IBE, the IIT Madras, the IIT Jodhpur and the High Energy Batteries(I) Limited, Tiruchirappalli.

5. The Adviser (S&T), NITI Aayog, suggested that the IBE may visit/consult the lithium-ion battery pilot plant of the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad (a society of the DST) in the research park of the IIT, Madras. It was further suggested that regarding the funding of the IBE’s proposal, the MNRE may be approached. He also requested the IBE to provide the details of the PLC manufacturing process, the cost economics involved in the process and how the supply/availability of lithium

can be ensured for the future demand/production of the PLC. The Adviser(S&T) also opined that the difference in the figure (per unit) reported in the presentation, against energy density, may be reconciled.

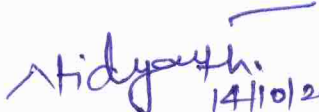
6. The Adviser (Energy), NITI Aayog, suggested that due to the high central excise/value added tax on petrol & diesel, the cost benefit analysis of the PLC production per unit may be done with respect to petrol, without taking the tax incidence into account, for a fair comparison. He also informed that the Government was proposing an Advance Chemistry Battery Manufacturing programme, which was a production linked incentive programme, and the players could bid for getting the incentives which would be based on improving battery energy density and the life cycle.

7. After a detailed discussion, the following recommendations were made by the Chairman:

- i. The detailed economics and the cost benefit analysis of the PLC, starting from production to applications per kWhr, should be extensively done, along with the life cycle cost of the PLC.
- ii. The IBE may submit a detailed proposal to the funding agencies, such as the DST and the MNRE, to obtain funding for taking the PLC from the current level of development, to production at a commercial scale.
- iii. The IBE may use the existing facilities in the Central Electrochemical Research Institute (CECRI), Karaikudi (Taramani campus, Chennai) or the ARCI, Hyderabad, for assistance in the production of the IBE's technologies.
- iv. For independent production, the IBE is encouraged to raise funds not only for pilot scale production but also to go up to the commercial level.
- v. About protected sodium cassette, it was suggested that the IBE may bring down the cost of the anode and use it in Na/Air battery.
- vi. The Chairman assured that the NITI Aayog would provide all the necessary support to take forward the indigenous initiatives of the IBE.

8. The meeting then ended with a Vote of Thanks to the Chair.

This issues with the approval of the competent authority.


14/10/2020
(Navin Kumar Vidyarthi)
Director

List of participants

1. Dr. V.K.Saraswat, (in Chair), Member, NITI Aayog
2. Dr. Rakesh Sarwal, Additional Secretary, NITI Aayog
3. Sh. Neeraj Sinha, Adviser(S&T), NITI Aayog
4. Sh. Rajnath Ram, Adviser (Energy), NITI Aayog
5. Sh. Navin Kumar Vidyarthi, Director (Energy), NITI Aayog
6. Dr. SRS Prabakaran, CEO, Inventus BioEnergy (P) Ltd.
7. Dr. S. Harinipriya, Head of Operations, Inventus BioEnergy (P) Ltd.
8. Shri S. Mohit Rao, Young Professional (S&T), NITI Aayog.