GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION No. 1212
TO BE ANSWERED ON 09.02.2022

GREEN FUELS

1212. SHRI SANJAY SADASHIVRAO MANDLIK:
SHRI DHAIRYASHEEL SAMBHAJIRAO MANE:
SHRI PRATAPRAO JADHAV:
SHRI SUDHEER GUPTA:
SHRI SHRIRANG APPA BARNE:
SHRI BIDYUT BARAN MAHATO:

Will the Minister of SCIENCE AND TECHNOLOGY विज्ञान और प्रौद्योगिकी मंत्री **be pleased to state:**

(a) whether the Government has signed any joint research and development agreement with Denmark on green fuels including green hydrogen during the recent science and technology meet between the two countries;

(b) if so, the details thereof along with the terms and conditions thereto;

(c) whether the Government also proposes to sign such an agreement with other countries and if so, the details thereof, country-wise;

(d) whether the Government is considering to give any special incentives to attract investments in green research, technology and innovation;

(e) if so, the details thereof and the steps taken by the Government in this regard; and

(f) the details of other measures taken/being taken by the Government to promote green fuel in the country?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) OF THE MINISTRY OF SCIENCE AND TECHNOLOGY & EARTH SCIENCES (DR. JITENDRA SINGH)

विज्ञान और प्रौद्योगिकी तथा पृथ्वी विज्ञान मंत्रालय के राज्य मंत्री (स्वतंत्र प्रभार)
(डॉ. जितेंद्र सिंह)

(a) & (b) Recently the Government has not signed any specific joint research and development agreement with Denmark on green fuels including green hydrogen. However, under the existing India-Denmark Science, Technology and Innovation Agreement signed in 2018, Joint Committee meeting held on 14th January 2022 agreed to invite joint research proposals in the area of green fuels including green hydrogen. This call for proposals is aligned to the Green Strategic Partnership – Action Plan 2020-2025, as agreed by the two Prime Ministers.

Further, the Ministry of New and Renewable Energy had signed MoUs with Denmark on 06.02.2008, 06.03.2019 and a letter of intent on 06.03.2019 for cooperation in the areas of renewable energy. National Institute of Wind Energy, an autonomous institute under the aegis of this Ministry has also signed a MoU with Denmark Technical University on 17.12.2018 for cooperation in the field of wind energy and wind solar hybrid system.

(c) As on date no such proposal is under consideration, however presently 48 Nos. of active bilateral Memorandum of Understanding with foreign countries in various field of green energy viz Solar Energy, Small Hydro Projects, Wind Energy, Biomass/Bio-energy etc. covering areas like exchange of scientific personnel, exchange of scientific information, transfer of equipment and technology, development of joint research etc. are in existence.

(d), (e) and (f) The Government of India has taken various initiatives to promote green research, technology and innovation in the country. Gist of the initiatives taken by the Department of Science & Technology (DST), Department of Biotechnology (DBT), Council of Scientific and Industrial Research (CSIR), Ministry of New and Renewable Energy (MNRE) and Ministry of Heavy Industries (MHI) is at Annex-I:

ANNEX-I

1. The Department of Science & Technology (DST) has taken up development of hydrogen and fuel cell technologies in mission mode at national level. DST has supported 30 national research projects under Hydrogen and Fuel Cell (HFC) program to develop transformational technologies that reduce the cost of hydrogen production, distribution & Storage, diversify the feedstock available for economic hydrogen production, enhance the flexibility of the power grid, and reduce emissions through novel uses of low-cost hydrogen.

1.1 Advanced Hydrogen and Fuel Cell (AHFC) programme was launched by DST in 2021, to promote and support activities related to indigenous development of new and existing material in large quantities, catalysts, membrane, components for fuel cells, electrolysers, hydrogen storage materials, materials for type IV cylinders and prototypes for implementation of various applications of hydrogen and fuel cell in the country. A total of 11 projects have been supported for funding with specific areas like Hydrogen Production, New Material Development, Hydrogen & Fuel Cell, Hydrogen Utilization & Refuelling, and Policy Frameworks & Hydrogen Safety.

2. The Department of Biotechnology is promoting Research, Development & Demonstration projects for the development of Green Fuels such as ethanol, algae based biodiesel, biogas, biohydrogen, sustainable aviation biofuels from organic municipal waste, agricultural waste, vegetable market waste etc. Biomass to advance biofuel technologies being supported at lab scale and potential leads need to test at pilot scale.

2.1 Under Mission Innovation (MI) program, India was the first country to set up an International Incubator, under its Mission Innovation commitment, to support start-ups ecosystem with clean energy innovations in their lab-to-market journey in partnership with the Indian private sector. Working with MI partners, Clean Energy International Incubation Centre (CEIIC), which is a joint initiative of Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India and Tata Trusts, anchored by Social Alpha (a non-profit incubation, acceleration and investment platform for startups), and is supported by DBT's Public Sector Undertaking, BIRAC and Tata Power.

2.2 Under Mission Innovation 2.0, the Department of Biotechnology is implementing Zero-emission shipping mission. India, Denmark, the United States, Norway, Global Maritime Forum and the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping are taking the lead on implementing a Zero-Emission Shipping Mission that aims to focus on the entire value chain: the ship, the fuel production and the fuel infrastructure.

3. Council of Scientific and Industrial Research (CSIR) has also recently launched two Missions to address the future energy needs and environmental concerns. These are on i) Green Hydrogen Mission: Production, Utilization, Storage and Conversion; and ii) Carbon Capture, Conversion, Storage and Utilization Mission.

4. The Ministry of New and Renewable Energy (MNRE) supports a scheme "Renewable Energy Research and Technology Development Programme" to enable indigenous technology development and manufacture for wide spread applications of new and renewable energy in efficient and cost effective manner across the country. The Ministry encourages research and technology development proposals in collaboration with the industry and provides upto 100% financial support to Government/non-profit research organizations and upto 50 to 70%% to Industry, Start-ups & Private Institutes.

4. 1 Ministry of New and Renewable Energy has been implementing the following Bioenergy schemes:

i. **Waste to Energy programme: Programme on Energy from Urban, Industrial, Agricultural Wastes/Residues and Municipal Solid Waste.**

ii. **Biogas programme: Biogas based Power Generation (Off-grid) and Thermal energy application Programme (BPGTP)" during 2020-21 (11-06-2020). New National Biogas and Organic Manure Programme (NNBOMP)" beyond 31.03.2020 and during the years 2020-21-reg (11-06-2020).**

iii. **Biomass Power Programme: Scheme to Support Promotion of Biomass Based Cogeneration in Sugar Mills and Other Industries in The Country**

4.2 Ministry of New and Renewable Energy also issues Certificates for availing concessional custom duty for import of machinery and components which are required for initial setting up of projects for generation of Bio-CNG and power from non- conventional materials

namely agricultural, forestry, agro-industrial, industrial, municipal and urban waste, bio waste or poultry litter and Municipal Solid Waste.

5. The Ministry of Heavy Industries formulated a Scheme Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) in 2015 to promote adoption of electric/ hybrid vehicles (xEVs) in the country. At present, Phase-II of FAME India Scheme is being implemented for a period of 5 years w.e.f. 01st April, 2019 with a total budgetary support of Rs. 10,000 crores.

5.1 Further, following steps have been taken by the Government for adoption of electric vehicles in the country:

i. **The demand incentive for electric two wheelers has been increased to Rs. 15,000/KWh from Rs. 10,000/KWh with an increase in cap from 20% to 40% of the cost of vehicle from 11th June, 2021, thus enabling cost of Electric two wheelers at par with that of ICE two wheeler vehicles.**
ii. **The Government on 12th May, 2021 approved a Production Linked Incentive (PLI) scheme for manufacturing of Advanced Chemistry Cell (ACC) in the country in order to bring down prices of battery in the country. Drop in battery price will result in cost reduction of electric vehicles.**
iii. **Electric Vehicles are covered under Production Linked Incentive (PLI) scheme for Automobile and Auto Components, which was approved on 15th September 2021 with a budgetary outlay of Rs. 25,938 crore for a period of five years.**
iv. **GST on electric vehicles has been reduced from 12% to 5%; GST on chargers/ charging stations for electric vehicles has been reduced from 18% to 5%.**
v. **Ministry of Road Transport & Highways (MoRTH) announced that battery-operated vehicles will be given green license plates and be exempted from permit requirements.**
vi. **MoRTH issued a notification advising states to waive road tax on EVs, which in turn will help reduce the initial cost of EVs.**

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