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PAT- NEWSLETTER

**PAT Cell, Karnataka Renewable Energy Development Limited
(KREDL)**



**Green Hydrogen Schemes guidelines released for Pilot projects in Iron & Steel,
Petroleum Refinery, Shipping & Transport sector by MNRE**

Interim Budget Gives Push to Green Growth

**Regional Workshop for PAT DCs and Sugar Industries conducted in
Bengaluru on 15th February 2024**

Green hydrogen schemes announced by Ministry of New and Renewable Energy (MNRE) under

1. Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme:

The presently identified modes for the implementation of the 'Incentive Scheme for Green Hydrogen Production' are as follows:

Mode 1: Bidding on least incentive demanded over the three-year period, through a competitive selection process.

Mode 2: Aggregation of demand and calling for bids for production and supply of Green Hydrogen and its derivatives at the lowest cost through a competitive selection process.

Mode 2 can be of the following types:

Incentive for Procurement of Green Ammonia Production (under Mode-2A) of the National Green Hydrogen Mission.

The Scheme will be implemented by the Ministry of New and Renewable Energy (MNRE) through Solar Energy Corporation of India Limited (SECI) as the Implementing Agency.

The implementation agency/ agencies shall aggregate demand and call for bids for production and supply of **Green Ammonia** at the lowest cost through a competitive selection process with the incentive being fixed.

To qualify for incentives under the scheme, the bidder must ensure that the Green Hydrogen utilized in the production and supply of Green Ammonia aligns with the detailed criteria outlined in the 'National Green Hydrogen Standard' notified by MNRE.

Beneficiaries under the scheme will be selected through a competitive selection process.

The incentive will be Rs. 8.82/kg of Green Ammonia in the first year of production and supply, Rs. 7.06/kg during the second year of production and supply, and Rs. 5.30/kg during the third year of production and supply.

Click the [Link](#) for details

• **Mode 2B:** The implementation agency/ agencies shall aggregate demand and call for bids for **production and supply of Green Hydrogen** at the lowest cost **for a single refinery or multiple refineries**, as decided by the Implementing Agency, through a competitive selection process with the incentive being fixed.

The scheme will be implemented by Oil & Gas companies and Centre for High technology (CHT), i.e., the Implementing agency nominated by the Ministry of Petroleum and Natural Gas (MoPNG). The implementing agencies will aggregate demand and call for bid for Production and supply of Green Hydrogen at lowest cost for single refinery or multiple refineries, through a competitive selection process with the incentive being fixed.

Each Oil & Gas company will aggregate demand and call for bids for production and supply of Green Hydrogen at the lowest cost for its single refinery or multiple refineries.

The incentive will be Rs. 50/kg of Green Hydrogen in the first year of production and supply, Rs. 40/kg during the second year of production and supply and Rs. 30/kg during the third year of production and supply.

Outlay for Incentive Scheme for Production of Green Hydrogen and its derivatives (all modes): Rs. 13,050 crores.

Click the [Link](#) for details

2. Pilot Projects

a) Pilot projects for use of Green Hydrogen in Steel Sector

Considering the higher cost of green hydrogen at present, steel plants can begin by blending the small percentage of green hydrogen in their process. The blending proportion can be progressively increased as the cost economics improves and technology advances. Further upcoming steel plants should be capable of operating with Green Hydrogen. This would ensure that these plants are able to participate in future global low carbon steel markets. Green Field projects aiming at 100% green steel will also be considered.

Thrust areas under this scheme for providing support development/selection/validation of commercially viable technologies, for utilization of hydrogen in steel sector are as follows:

- Use of 100% Hydrogen in DRI process using vertical shaft/kiln
- Use of Hydrogen in blast furnace, as per the limits prescribed.
- Substitution of fossil fuels with hydrogen in a gradual manner in DRI process.
- Any other innovative use of hydrogen for reducing carbon emissions in Iron & Steel production.

Budgetary Outlay: Rs.455 crore till FY 2029-30.

Ministry of Steel shall finalize the SIA(s) for implementation of the scheme.

Click the [Link](#) for details

b) Pilot projects for use of Green Hydrogen in Transport Sector

The implementing agencies for this shall be nominated by the nominated by Ministry of Road Transport and Highways (MoRTH).

The mission proposes to support deployment of FCEV and Hydrogen ICE Buses and trucks, in a phased manner on pilot basis.

Financial assistance will be provided to close the viability gap due to relatively higher capital cost of FCEV and HYDROGEN ICE vehicles in initial years. The mission will explore possibilities of blending green hydrogen-based methanol/ ethanol and other synthetic fuels derived from Green Hydrogen in automobile fuels.

Budgetary outlay: Rs. 496 crores till FY 2025-26.

Click the [Link](#) for details

c) Pilot projects for use of Green Hydrogen in Shipping Sector

The Shipping Corporation of India (SC) or its successor, in case of disinvestment, will be the Implementing Agency for retro fitting of the existing ships. Component on creation of bunkers and refueling facilities will be implemented by the agency nominated by the Ministry of Ports, Shipping and Waterways (MoPSW)

This scheme is for:

(a) Retrofitting of existing ships to run on Green Hydrogen or its derivatives (Component-A) -- ₹ 80 Crore.

(b) Development of bunkering and refueling facilities on ports for Green Hydrogen based fuels (Component-B) --- ₹ 35 Crore.

Total Budgetary Outlay: Rs. 115 Crore till FY 2025-26.

Click the [Link](#) for details

Highlights of Interim budget - 2024 of Central Government

Green Energy

1. **Towards meeting the commitment for 'net-zero' by 2070, the following measures will be taken.**
 - a. Viability gap funding will be provided for harnessing offshore wind energy potential for initial capacity of one giga-watt.
 - b. Coal gasification and liquefaction capacity of 100 MT will be set up by 2030. This will also help in reducing imports of natural gas, methanol, and ammonia.
 - c. Phased mandatory blending of compressed biogas (CBG) in compressed natural gas (CNG) for transport and piped natural gas (PNG) for domestic purposes will be mandated.
 - d. Financial assistance will be provided for procurement of biomass aggregation machinery to support collection.

Electric Vehicle Ecosystem

2. Government will expand and strengthen the e-vehicle ecosystem by supporting manufacturing and charging infrastructure. Greater adoption of e-buses for public transport networks will be encouraged through payment security mechanism.

Bio-manufacturing and Bio-foundry

3. For promoting green growth, a new scheme of bio-manufacturing and bio-foundry will be launched. This will provide environment friendly alternatives such as biodegradable polymers, bio-plastics, bio-pharmaceuticals and bio-agri-inputs. This scheme will also help in transforming today's consumptive manufacturing paradigm to the one based on regenerative principles.

Energy Security

4. Aligning with the '*Panchamrit*' goals, Government will facilitate sustaining high and more resource-efficient economic growth. This will work towards energy security in terms of availability, accessibility, and affordability.

Rooftop solarization

5. Through rooftop solarization, one crore households will be enabled to obtain up to 300 units free electricity every month. (Subsidy to the households is Rs. 30,000/- per kW up to 2 kW Rs. 18,000/- per kW for additional capacity up to 3 kW Total Subsidy for systems larger than 3 kW capped at Rs 78,000)

Economic railway corridor

6. Energy, mineral, cement corridors and port connectivity corridors will be implemented to improve logistics efficiency and reduce costs.

- To make farmers self-sufficient, 40,000 off-grid solar pump sets are being installed under PM-KUSUM Component-B scheme at an estimated cost of Rs.1,174 Crore. The Central Government share is 30% and the subsidy provided by the State Government has been enhanced from 30% to 50%.
- Karnataka Power Corporation Limited will implement Floating and Ground-mounted Solar plant program in collaboration with Tehri Hydro Development Corporation India Limited (THDCIL).
- Solarisation of 4.30 lakh IP sets by implementing 1,192 MW solar projects under Phase-II is proposed.
- 300 kW capacity self-sustained Green hydrogen plant will be installed by KREDL on a pilot basis. This will be installed using MNRE funds at an estimated cost of Rs.10 crore. A new Green Hydrogen Policy will be formulated.
- It is proposed to set up Micro Grid Solar units of 500 KW battery storage capacity in one backward village under the jurisdiction of each ESCOM. They will be installed by KREDL on a pilot basis, to make these villages self-reliant.
- In order to produce renewable energy on a large scale and to transmit it to load centres and Green Hydrogen hubs, it is proposed to establish Ultra High Voltage (UHV) transmission lines of 765 kV by KPTCL.
- In order to encourage Electric Vehicles in the State, 2,500 Electric Vehicle Charging Stations will be set up under Public-Private-Partnership. Besides, 100 charging centres will be set up through power supply companies at a cost of Rs. 35 crores.

Workshop

Regional Workshop on “PAT Scheme and its Enforcement” was organized by Bureau of Energy Efficiency (BEE) in association with Karnataka Renewable Energy Development Limited (KREDL) on 15th February 2024 at The Capitol Hotel, Bengaluru. The workshop was inaugurated by Sri. Nagaraja G P (GM-Tech, KREDL), Sri. Ashish Ranjan Srivastava (Senior Sector Expert, BEE), Sri. Ravi Shankar Prajapati (Joint Director, BEE), Sri. Maruthi T (AGM, KREDL).

The aim of the program was to raise awareness among the Designated Consumers (DCs) for the PAT cycles 4 to 8. Representatives from BEE explained about status of the PAT scheme and way forward, including Carbon Market. And discussed about PAT Rules, Obligations, and penalty clauses for the defaulting DCs. The second session was about Inclusion of Sugar Industries about PAT Scheme. Introduction of helpdesk and payment gateway was discussed. BEE notified energy savings to Sugar industries.

The program was graced by the participants from Designated Consumers (DCs) from different sectors, Energy Managers, Energy Auditors, Accredited Energy Auditors, Chief Engineers, and other Representatives from other states.

The workshop was attended by around 160 delegates.



Case Study

Installing an Induction Furnace in place of fuel fired furnace

Before:

Furnace Oil fired Rotary Furnace

Furnace Oil Consumption = 104,500 liter/month (equivalent to 11,15,477 kWh)

Production = 950 ton/month



After:

Induction furnace with 1,536 kW connected load

Electricity consumption = 750,000 kWh/month

Production = 1200 ton/month

Energy saved = 4,385,724 kWh/Year

Alert!! - New DCs from PAT-7A have to submit their first Mandatory Energy Audit (MEA) report by 31st March 2024 conducted by an Accredited Energy Auditor (AEA)

For more details on BEE's facilitation centre for energy efficiency projects financing, please visit <https://www.adeetie.beeindia.gov.in/>
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