

353/39/2023-NT
Government of India
Ministry of New and Renewable Energy
(Hydrogen Division)

Atal Akshay Urja Bhawan,
Lodhi Road, New Delhi 110003
Date: 28/06/2023

To

The Pay & Accounts Officer,
Ministry of New and Renewable Energy,
New Delhi- 110003

Sub: Scheme Guidelines for implementation of "Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme – Component I: Incentive Scheme for Electrolyser Manufacturing" of the National Green Hydrogen Mission

Sir/Madam,

I am directed to convey the sanction of the President of India for the implementation of the "Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme – Component I: Incentive Scheme for Electrolyser Manufacturing" of the National Green Hydrogen Mission for the period from FY 2025-26 to FY 2029-30 with a total outlay of Rs. 4440 crore under this component.

2. Objectives:

- i. Maximize the indigenous electrolyser manufacturing capacity.
- ii. Achieving lower levelized cost of Hydrogen production.
- iii. Ensuring globally competitive performance and quality of products.
- iv. Progressively enhancing domestic value addition.
- v. Supporting established and promising technologies.

3. Implementation Methodology: The Scheme will be implemented as per the detailed Scheme Guidelines at **Annex**.

4. The expenditure on this scheme will be met from the budget provisions given under the Hydrogen Mission Head.
5. Solar Energy Corporation of India (SECI) shall be the implementing agency for implementation of this scheme.
6. This issues in exercise of the powers conferred on this Ministry and with the concurrence of IFD vide their Diary. No. 128 dated 28/06/2023.



7. This has the approval of Hon'ble Minister of Power and New and Renewable Energy.

Yours faithfully,



(Dr. Prasad Chaphekar)

Deputy Secretary

Email: prasad.chaphekar@gov.in

Enclosed: **Annex**

Copy to:

1. All Central Government Ministries and Departments
2. All Members of the Empowered Group under the Mission
3. All Members of the Advisory Group under the Mission
4. CEO, NITI Aayog, Sansad Marg, New Delhi
5. State Nodal Agencies (SNAs) of all States/UTs
6. Major Public Sector Enterprises operating in Renewable Energy/Power Sector
7. Principal Director of Audit, Scientific Audit-II, DGCAR, I.P. Estate, Delhi-11002
8. Director General (Local Bodies), Office of the Comptroller & Auditor General, Deendayal Upadhyay Marg, New Delhi
9. Solar Energy Corporation of India (SECI), 6th floor, Plate-B, NBCC office, Block tower-2, East Kidwai Nagar, New Delhi. 110023
10. Indian Renewable Energy Development Agency Limited (IREDA), 3rd floor, August Kranti Bhavan, Bhikaji Cama place, New Delhi-110066

Internal distribution

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(Dr. Prasad Chaphekar)

Deputy Secretary

Email: prasad.chaphekar@gov.in

Subject: Scheme Guidelines for implementation of “Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme – Component I: Incentive Scheme for Electrolyser Manufacturing” under the National Green Hydrogen Mission

1. Introduction

The Union Cabinet has approved the National Green Hydrogen Mission with an outlay of ₹ 19,744 crore up to 2029-30. The Strategic Interventions for Green Hydrogen Transition (SIGHT) programme is a major financial measure under the mission, with an outlay of 17,490 crore. The programme proposes two distinct financial incentive mechanisms to support domestic manufacturing of electrolysers and production of Green Hydrogen. These incentives are aimed at enabling rapid scale-up, technology development and cost reduction. This document lays down the framework for the proposed incentives for electrolyser manufacturing under SIGHT.

2. Title of Scheme: Incentive Scheme for Electrolyser Manufacturing

3. Outlay: ₹ 4,440 crore

4. Objectives:

- i. Maximizing the indigenous electrolyser manufacturing capacity.
- ii. Achieving lower levelized cost of hydrogen production.
- iii. Ensuring globally competitive performance and quality of products.
- iv. Progressively enhancing domestic value addition.
- v. Supporting established and promising technologies.

5. Implementation Methodology:

The scheme will be implemented through a transparent selection process for award of incentives, details of which are furnished in the succeeding paragraphs.

5.1 Implementing Agency

- i. The Scheme will be implemented by MNRE through Solar Energy Corporation of India Limited (SECI) as the Implementing Agency. SECI will be responsible for providing secretarial, managerial and implementation support and carrying out other responsibilities as assigned by MNRE from time to time. The responsibilities of SECI inter alia, include receipt of applications, examination and appraisal of applications as per the provisions of the scheme, issuing acknowledgements and letters of award to applicants, examination of claims of beneficiaries for disbursement of incentives, verification and reconciliation of disbursement claims with prescribed

documents, compilation of data regarding progress and performance of the scheme through Quarterly Review Reports and other information / documents. SECI will also submit progress to MNRE on a quarterly basis along with details of disbursement claims received for Incentive, amount disbursed, reasons for delay in disbursement of the incentives etc. SECI will be eligible to get 0.5% of the incentive amount disbursed as administrative charges on annual basis.

- ii. SECI will have the right to carry out physical inspection of an applicant's manufacturing units and offices. It may take help of third-party agencies for verification of technical parameters. If required, MNRE may also designate National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited labs or other third-party certification agencies, etc. for such verification.

5.2 Guiding Principles:

- i. Under the programme, support will be provided for electrolyser manufacturing, in terms of Rs./kW corresponding to the manufacturing capacity.
- ii. Base Incentive will start with Rs.4440/kW in the first year and will gradually taper down on an annual basis.
- iii. The incentives proposed under this scheme will be provided for 5 years from the date of commencement of manufacturing of electrolysers.

5.3 Selection of bidders for award of incentive

The details of selection process of bidders for award of incentives is outlined in this section.

5.3.1 Performance quotient

The scheme aims to incentivize manufacturing of efficient and high-quality electrolysers in India. Since Specific Energy Consumption (SEC) of electrolyser will directly impact the cost of Green Hydrogen, the following parameters will be considered while calculating the incentives:

Category number	1	2	3	4	5	6	7	8	9	10	11	12
Specific Energy Consumption(σ) (kWh/kg of H ₂)	$\sigma < 46$	$46 \leq \sigma < 47$	$47 \leq \sigma < 48$	$48 \leq \sigma < 49$	$49 \leq \sigma < 50$	$50 \leq \sigma < 51$	$51 \leq \sigma < 52$	$52 \leq \sigma < 53$	$53 \leq \sigma < 54$	$54 \leq \sigma < 55$	$55 \leq \sigma < 56$	$\sigma > 56$
Performance quotient	1.20	1.16	1.12	1.08	1.04	1.00	0.96	0.92	0.88	0.84	0.80	0

5.3.2 Local Value Addition

- i. A key objective of the scheme is to progressively indigenize the

electrolyser value chain. For this purpose, to be eligible for incentives, the bidder would have to demonstrate certain minimum Local Value Addition (LVA) for each year of production of electrolyzers as per the following table:

For Alkaline Electrolyzers:

Year of production	1st	2nd	3rd	4th	5th
Minimum LVA	40%	50%	60%	70%	80%

For Proton Exchange Membrane/Solid Oxide Electrolyser/Anion Exchange Membrane Electrolyzers:

Year of production	1st	2nd	3rd	4th	5th
Minimum LVA	30%	40%	50%	60%	70%

ii. The percentage of Local Value Addition will be calculated as follows:

$$LVA = \left[\frac{[(\text{Sale Value of Electrolyser}) - (\text{Value of imports})]}{\text{Sale Value of Electrolyser}} \right] \times 100\%$$

For this purpose:

- Sale Value of Electrolyser is the Sale value of Electrolyser as per GST invoice excluding net domestic indirect taxes and returns.
- Value of imports is the Value of direct and indirect imported materials and services (including all Customs Duty) as per Bill of Entry filed in Customs, used in manufacturing of electrolyser.
- Verification of Local Value Addition (LVA) will be carried out on an annual basis. For the purpose of determination of LVA, weighted average LVA for the completesales in a given year shall be certified by Statutory Auditor.

5.3.3 LVA Factor

Further, an LVA factor would be defined as follows:

For Alkaline Electrolyzers:

LVA%	LVA < 40%	40% ≤ LVA < 50%	50 ≤ LVA < 60%	60 ≤ LVA < 70%	70 ≤ LVA < 80%	80 ≤ LVA ≤ 90%	LVA > 90%
LVA Factor	0	0.4	0.5	0.6	0.7	0.8	1.0

For PEM/SOEC/AEM Electrolysers:

LVA%	LVA < 30%	30% ≤ LVA < 40%	40% ≤ LVA < 50%	50 ≤ LVA < 60%	60 ≤ LVA < 70%	70 ≤ LVA ≤ 80%	LVA > 80%
LVA Factor	0	0.4	0.5	0.6	0.7	0.8	1.0

5.3.4 Bid Process:

MNRE, through Solar Energy Corporation of India (SECI), will invite bids for competitive selection. Successful bidders will be eligible to access the incentives as detailed in this document.

The bidders will be required to quote the following:

- Annual Manufacturing capacity for which incentive is sought.
- Committed Specific Energy Consumption (SEC) of the electrolyser produced each year for the 5-year period.
- Committed Local Value Addition (LVA) on an annual basis for 5 years.

5.3.5 Bid Selection Parameter:

The selection parameter will be calculated as the sum of products of the quoted LVA factor and Performance quotient over the 5-year period

$$\text{Selection Parameter} = \sum_{i=1}^5 (\text{LVA factor} \times \text{Performance Quotient})$$

5.3.6 Selection Process:

- The bidders will be ranked in the decreasing order of the Selection Parameter for allocation of the admissible bid capacity.
- In case of a tie in the Selection parameter, the selection will be based on the average Performance quotient over the 5-year period.
- In case two or more bids have the exact same selection parameter, such tied bids will be prioritized based on bid capacity and if bid capacities are also the same then such tied bidders will be given the same ranking and allotted manufacturing capacity accordingly.

5.3.7 Eligibility for bidding

- i. The bidder can be a single company or a Joint Venture/ Consortium of more than one company.
- ii. The Net Worth of the Bidder, as on the last date of Financial Year as specified in the tender document should be equal to or greater than ₹ 1 crore per MW of quoted manufacturing capacity. The Bidder may seek qualification based on financial capability of its Affiliate(s) for the purpose of meeting the qualification requirements.
- iii. The beneficiary will have to demonstrate minimum 50% of annual sales of electrolysers for installation of projects in India
- iv. The electrolysers manufactured by the bidders must fulfill the following requirements:
 - a. Specific Energy Consumption (SEC) to be equal to or less than 56 kWh per kg of Hydrogen production. For this purpose, the SEC shall be measured at 100% rated capacity at the stack level on DC side. The SEC values will need to be demonstrated at or prior to commissioning of the electrolyser as per the detailed procedure to be specified in RfP.
 - b. Guaranteed Life of electrolyser to be at least 60,000 hrs.
 - c. Minimum 40% Local Value Addition (LVA) during first year of production for Alkaline electrolysers and minimum 30% for other technologies.

5.3.8 Separate bucket to encourage indigenous technologies

In order to promote indigenously developed electrolyser technologies, bids in the first tranche of 1500 MW will be called in two separate buckets as follows:

Bucket 1: Electrolyser manufacturing capacity based on any stack technology	Bucket 2: Electrolyser manufacturing capacity based on indigenously developed stack technology
1200 MW	300 MW

5.3.9 Capacity Allocation

- i. The capacity available for bidding under the first tranche of Mode I is 1500 MW.
- ii. Under "Electrolyser manufacturing capacity based on any stack technology" - The maximum capacity that can be allotted to a single bidder will be 300 MW. The minimum capacity that can be bid for shall not be less than 100 MW.
- iii. Under "Electrolyser manufacturing capacity based on indigenously developed stack technology" - The maximum capacity that can be allotted to a single bidder will be 300 MW.
- iv. The bidders can bid for either or both buckets. The bids for the "Electrolyser manufacturing capacity based on any stack technology" bucket will be decided first, followed by the bids for the "Electrolyser manufacturing capacity based on indigenously developed stack technology" bucket. However, the

maximum capacity that can be allotted to a single bidder is limited to 300 MW.

- v. Bidders who have been awarded capacity in Bucket I will be considered for the indigenously developed stack technology for balance capacity only if capacity awarded in Bucket I is less than 300 MW.
- vi. Any unallocated capacity under any tranche would be shifted to the subsequent tranche.

5.4 Payment of incentives to successful bidders

5.4.1 Base Incentive:

The base incentive available in each year will be as per a defined tapering trajectory, which is as follows:

Year of Sales	Year 1	Year 2	Year 3	Year 4	Year 5
Base Incentive Available (₹/kW)	4440	3700	2960	2220	1480

5.4.2 Electrolyser Sales Volume:

The quantum of electrolyser sales eligible for incentives in a given financial year would be the allocated capacity or Net sales of electrolysers (in kW), whichever is lower. For availing the incentive, the criteria, as specified in Section 5.3.7 (iii) and (iv) should be met.

5.4.3 Calculation of incentive payout

The incentive for each successful bidder for a particular year will be calculated as follows:

$$(\text{incentive})_i = (\text{Electrolyser Sales Volume})_i \times (\text{Quoted Base Support rate})_i \times (\text{Performance Multiplier})_i \times (\text{Domestic Value Addition})_i$$

Where,

Electrolyser Sales Volume: Net sales of electrolysers for the year (in kW) as defined in 5.4.2

Quoted Base Support Rate: Base incentive for year "i" as specified in table in 5.4.1 (in Rs./kW)

Performance Multiplier for a given year "i" is calculated as given in the following table:

S.No	Condition	Value of Performance Multiplier
1	SEC is within the same Category of the table in 5.3.1 as quoted by the bidder for that year	1
2	SEC degrades and falls in the subsequent category of table in 5.3.1 than the one as per SEC quoted by the bidder for that year, but is above 56kWh/kg of Hydrogen	0.8
3	SEC degrades and falls beyond one subsequent category of table in 5.3.1 as per SEC quoted by the bidder for that year but is above 56 kWh/kg of Hydrogen	0
4	SEC degrades below 56 kWh/kg of Hydrogen for that year	0

<p>Illustration: If a bidder quotes 51.8 SEC (category 7) for the second year, and</p> <ol style="list-style-type: none"> 1. Achieves SEC greater than or equal to 51 and less 52, (or better than 51), (Category number 7) Performance Multiplier would be 1 2. Achieves SEC greater than or equal to 52 and less 53, (Category number 8) Performance Multiplier would be 0.8 3. Achieves SEC equal to or more than 53, (Category number 9) Performance Multiplier would be 0 4. Achieves SEC more than 56kWh/kg of Hydrogen, Performance Multiplier would be 0

Domestic Value Addition (DVA) for a given year "i" is calculated as given in the following table:

S. No	Condition	Value of DVA
1	LVA is equal to or above 98% of the quoted value of LVA by the bidder for that year	1
2	LVA is above or equal to 95% but less than 98% of the value quoted by the bidder, but more than the minimum LVA specified for that year	0.8
3	LVA is less than 95% of the quoted value of LVA by the bidder for that year but more than minimum specified LVA for that year	0
4	LVA falls below minimum value as specified in 5.3.2	0

Illustration: If a bidder quotes 69% LVA for the year where the minimum specified is 60%, and

1. Achieves LVA of 67.62 (98% of 69) or more, DVA would be 1
2. Achieves LVA greater than or equal to 67.55(95% of 69) and less than 67.62, DVA would be 0.8
3. Achieves LVA less than 67.55, DVA would be 0
4. Achieves LVA less than 60%, DVA would be 0

5.5 Timelines for commissioning

The successful bidders allotted capacities under the scheme must commence manufacturing in accordance with the timelines mentioned in the tender document.

5.6 Penalties

- i. Bidders will have to submit, at the time of bid submission, Earnest Money Deposit (EMD) as prescribed in the tender document. The tender document will inter-alia, contain provisions regarding forfeiture of EMD in case of selected bidder refusing to submit the requisite documents/Performance Bank Guarantees (PBG)/ or any other Performance Guarantee Instrument as per tender document/ extant guidelines or the selected bidder not meeting eligibility criteria upon submission of documents.
- ii. Successful bidders who have been awarded capacities will have to submit Performance Bank Guarantees (PBG)/other similar performance guarantee instruments, at the time of accepting the award as prescribed in the tender document. In case of default or delay in project commissioning, commensurate bank guarantees/other similar performance guarantee instruments will be forfeited by SECI, as penalty. Detailed modalities in this regard will be given in tender documents. Encashment of EMD, bank/other guarantees, accrued interest or other penalties collected by SECI will be remitted to the Consolidated Fund of India by SECI as per rule-230 (8) of GFRs 2017 after deducting the Legal expenditure (if any).

5.7 Monitoring

A Scheme Monitoring Committee (SMC) under the chairmanship of Secretary, MNRE, and comprising representatives from MNRE, SECI and experts from other organizations as may be required for the purpose, shall periodically review of the status of implementation/ performance of electrolyser manufacturing capacities awarded/ set up under the scheme. The committee will also facilitate / recommend measures to resolve difficulties, if any.