

50 MW RE RTC power from Hybrid RE projects with Hybrid Energy Storage (Battery storage + Hydrogen Energy Storage)

Background:

Globally, many countries are moving towards net zero emission targets and India also committed to achieve net zero emissions by 2070. In the path of achieving net zero emissions India has the target of achieving 500 GW of electricity production through clean energy sources.

Increasing Renewable in Electricity mix will pose issues of sustainable supply of power and grid stability. These can be addressed by using energy storage to balance electricity production with electricity demand. Future electricity demand shall be met through the RE sources only where the New conventional power generation capacity additions is not being taken up.

In the absence of conventional thermal electricity generation, meeting base load requirements through RE projects is challenge. This challenge can be mitigated by developing hybrid RE projects with Energy Storage. SECI is in the process of developing various hybrid RE projects to meet the demand of utilities. These include the projects with assured supply during peak hours, Round The clock (RTC) RE projects, Load following RE RTC projects etc.

During the discussions with NDMC, SECI has proposed the project of 50 MW RE RTC power to suit the demand profile of NDMC, with combination of Solar, Wind, Battery storage and Hydrogen Storage.

As it will be expensive to deploy Battery storage to ensure the supply of power during any low generation days, Hydrogen Energy storage is provided as an alternate solution. As the Hydrogen technology is under development state, the initial projects are planned to be supported through grants under Hydrogen Mission.

RE RTC solutions:

The RTC solutions developed by SECI ensures the supply of RE power during all the time blocks throughout the year. As the cost of energy storage is high, providing 100% delivery power with RE sources will increase the tariff. Therefore, the solutions are designed with the minimum delivery of 80% with day ahead scheduling and another -10% can be varied during intraday revisions. With this reasonable tariff levels can be achieved.

The proposed 50 MW RE RTC project will have 60MW solar, 60 MW wind capacity along with 10 MWh of Battery Energy storage and 2 MW of Hydrogen storage with Fuel Cell. The project will ensure the continued delivery of power during overcast or low wind conditions also, through the large Hydrogen storage capacity developed at the project site.

Power delivery Profile:

Power delivery profile of the project will be matching with the demand profile of NDMC. At any point of time minimum 80% of the contracted capacity will be delivered. For any deviation from the same, suitable penal provisions will be kept in the contract.

Power delivery schedules will be submitted on day ahead basis, 2 hours before DAM (Day ahead market) gate closure, therefore any shortfall scheduled between 90-100% of the capacity can be purchased from the DAM. Any intraday variation (between 80-100%) will be scheduled two time blocks before the gate closure of RTM (real time market). The estimated 20% shortfall is envisaged during the winter months where the wind power generation is low. As the Delhi power requirement in winter is low, this variation can be easily managed.

Tariff:

The proposal is being submitted to MNRE for grant support under National Hydrogen Mission. The estimated tariff from the project will be around Rs. 4.5/kWh (subject to approval of necessary grants from MNRE)

Project execution:

The project will be developed by SECI under Capex mode, where SECI will invest in the project. The necessary land for the project for the project is in possession with SECI. Upon receipt of Consent for purchase of power from NDMC, SECI will issue the EPC tenders for development of Solar, Wind, storage and Hydrogen storage plants. The tariff will be determined on cost plus basis as per CERC regulations. Any grants or duty exemptions availed by SECI will be passed on to NDMC.

Project time lines:

The project will be developed in 24 months from the date of award of the project.

ISTS waiver: ISTS charges will be applicable as per CERC orders.

Benefits to the off-taker:

1. Guaranteed power supply throughout the year.
2. High CUF will reduce the capacity tie up and result in reduction of transmission charges (CTU/STU).
3. NDMC will have the power from first of its kind project under the path of Net zero emission targets. The power generated from the project can be mapped to meet the demand of iconic buildings of the country like Central Vista under NDMC area.

The proposal above is submitted for approval

~~GM (PT)~~ ON TOUR
S. DCS

~~GM (PT)~~ ON LEAVE
S. DCS
15/03/2023

Umesh
U-B-K-REDDY
AGY

Proposal may be subject to availability of sufficient grant/CFA to match the tariff offered. Ishawar.
As desired, the proposal is assessed for approval. Date 15/03/2023
Dir. Balakrishna with permission and approval
MD P. Deo 15/3



सोलर एनर्जी कॉर्पोरेशन ऑफ़ हिंदिया लिमिटेड
(भारत सरकार का उपक्रम)

Solar Energy Corporation of India Ltd.
(A Government of India Enterprise)

स्वच्छ भारत - स्वच्छ ऊर्जा



No.: SECI/PT/NDMC/Hybrid/RTC/2023/54535

Date: 15.03.2023

To

The Director (Power)
Department of Director (Power and Commercial)
New Delhi Municipal Council (NDMC)
Palika Kendra, Sansad Marg
New Delhi – 110 001

Sub: Offer for 50 MW RE RTC power from Hybrid RE projects with Hybrid Energy Storage
(Battery storage + Hydrogen Energy Storage)

Sir,

With reference to the subject cited above, the proposal from SECI is hereby enclosed for your kind consideration.

Thanking you,

Yours sincerely

Enclosed: as above

15/03/2023
(Shibasish Das)
Senior Manager(PT)

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OFFICE OF
THE EXECUTIVE ENGINEER (SLDC)
NEW DELHI MUNICIPAL COUNCIL
ROOM NO. 1610, 16th FLOOR
PALIKA KENDRA : NEW DELHI

No. D-20/EE(SLDC)/2023

Date: 18.04.2023

To

The General Manager,
Power Trading Deptt.,
Solar Energy Corp. India Ltd. (SECI),
6th Floor, Plate-B,
NBCC Office Block Tower-2,
East Kidwai Nagar,
New Delhi-110023.

Sub:- NDMC Consent for procurement of 50 MW RTC RE power from Hybrid RE projects with Hybrid Energy Storage. (Battery storage + Hydrogen Energy Storage)

Sir,

With reference to your letter No. SECI/PT/NDMC/Hybrid/RTC/2023/54535 dt.15.03.2023, the undersigned is directed to convey the approval of the Competent Authority of NDMC for procurement of 50 MW RTC RE power from Hybrid RE projects with Hybrid Energy Storage (Battery storage + Hydrogen Energy Storage).

It is further to intimate that the Power Purchase Agreement (PPA) shall be signed after approval and adoption of tariff by DEREC and NDMC Council.

Thanking you,


[Sundeep Gaur]
Executive Engineer (E), SLDC
NEW DELHI MUNICIPAL COUNCIL

Email

Shibasish Das

Fwd: [WARNING: UNSCANNABLE EXTRACTION FAILED]Procurement of 50 MW RE RTC power from Hybrid RE projects with Hybrid Energy Storage (Battery storage + Hydrogen Energy Storage)

From : Atulya Kumar Naik <aknaik@seci.co.in>

Tue, Nov 19, 2024 06:28 PM

Subject : Fwd: [WARNING: UNSCANNABLE EXTRACTION FAILED]Procurement of 50 MW RE RTC power from Hybrid RE projects with Hybrid Energy Storage (Battery storage + Hydrogen Energy Storage)

1 attachment

To : Shibasish Das <shibasish@seci.co.in>, Anil Yadav <anilyadav@seci.co.in>, AMIT KUMAR <am.kumar@seci.co.in>

From: madanpalndmc@rediffmail.com

To: "Atulya Kumar Naik" <aknaik@seci.co.in>

Cc: "Rameshwar Prasad Gupta" <md@seci.co.in>

Sent: Monday, November 18, 2024 12:47:44 PM

Subject: [WARNING: UNSCANNABLE EXTRACTION FAILED]Procurement of 50 MW RE RTC power from Hybrid RE projects with Hybrid Energy Storage (Battery storage + Hydrogen Energy Storage)

Sir,

In the subject captioned above NDMC issued consent vide letter No. D-20/EE (SLDC)/2023 dated 18.04.2023 for procurement of 50 MW RE RTC power from Hybrid RE projects with Hybrid Energy Storage (Battery storage + Hydrogen Energy Storage).

As offered vide your letter No. SECI/PT/NDMC/Hybrid/RTC/2023 dated 15.03.2023, the project timelines were mentioned as 24 months from the date of award of the project. Approximately 18 months have been passed but no updation regarding date of award of work project is shared with NDMC.

You are requested to update the project status immediately.

Thanking You

Regards

Madan Pal
Advisor (RE)

 **NDMC_letter_consent_50_MW.pdf**
425 KB



**Report on
Resource Adequacy Plan
for the utility
NDMC, Delhi
(2024-25 to 2033-34)**

**Government of India
Ministry of Power
Central Electricity Authority**

Annexure-I

Future Contracted/Approved Capacity (MW) of Central and State Sector

Sr. No.	Tied capacity name	Type of generation	Expected COD/ Remark	NDMC share
1.	150 MW Hybrid NHPC	Hybrid	2024-25	120
2.	LT BESS IPGCL_SECI	Battery	2024-25	25
3.	LT Hybrid Power SECI	Hybrid	2024-25	50
4.	LT Solar Power SECI	Solar	2024-25	200
5.	Rangit-IV	Hydro	2025-26	50
6.	Ratle	Hydro	2027-28	50
7.	Teesta-VI	Hydro	2028-29	50

Assumption for Resource Adequacy Studies for NDMC

1. Energy requirement & peak demand as per the projections furnished by NDMC.
2. Demand Profile: Based on hourly demand profile of 2019-20 and 2022-23.
3. Existing & Planned Capacity: As per the information received from NDMC.
4. Future Capacity addition: based on RPO trajectory.
5. Cost parameters: based on information received from NDMC and available in NEP.

RE CUF considered

Hydro	44-48 %
Solar	24%
DRE existing and additional for RPO	14.583 %
Hybrid (planned addition)	30 %
Bioenergy	75 %

RPO Trajectory

Sl. No.	Year	Wind renewable energy	Hydro renewable energy	Distributed renewable energy	Other renewable energy	Total renewable energy
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	2024-25	0.67%	0.38%	1.5%	27.35%	29.91%
2.	2025-26	1.45%	1.22%	2.1%	28.24%	33.01%
3.	2026-27	1.97%	1.34%	2.7%	29.94%	35.95%
4.	2027-28	2.45%	1.42%	3.3%	31.64%	38.81%
5.	2028-29	2.95%	1.42%	3.9%	33.10%	41.36%
6.	2029-30	3.48%	1.33%	4.5%	34.02%	43.33%

In consideration of the fungibility clause as and when available.