भारतसरकार
Government of India
केंद्रीयविद्युत्प्राधिकरण
Central Electricity Authority
पश्चिमक्षेत्रीयविद्युत्समिति
Western Regional Power Committee
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No./WRPC/Prot/RE/2024/ 1909-1939 Date: 22.07.2024

सेवा में/ To,
As per List (सूची के अनुसार)

विषय: पश्चिमी क्षेत्र के आरई जेनरेटरों के मुद्दों पर चर्चा के लिए बैठक का कार्यवृत्त।

Sub: Minutes of Meeting to discuss the issues of RE Generators of Western Region.

महोदय/ Sir,

कृपया अपनी जानकारी और आवश्यक कार्रवाई के लिए पश्चिमी क्षेत्र में आरई जेनरेटर के मुद्दों पर चर्चा के लिए मुंबई में 21/06/2024 और 03/07/2024 को आयोजित बैठक का विवरण संलग्न करें। बैठक का विवरण वेबसाइट www.wrpc.gov.in पर भी उपलब्ध है, कृपया इसे डाउनलोड किया जा सकता है।

Please find enclosed herewith the Minutes of the Meeting to discuss the Issues of RE Generators in the Western Region held on 21/06/2024 & 03/07/2024 in Mumbai for your information and necessary action. The Minutes of the meeting is also available on website www.wrpc.gov.in, same may please be downloaded.

संलग्नक : ऊपरोक्तनुसार

Enclosed : As above

भवदीय/ Yours' faithfully,

(P. D. Lone)
अधीक्षण अभियंता (रक्षण)
Superintending Engineer (Protection)

Minutes of Meeting to discuss issues of non-compliances of RE Generator held on 21.06.2024 & 03.07.2024 at Mumbai

A meeting to discuss the issues of non-compliance of RE Generators was held under the chairmanship of Member Secretary, WRPC on 21.06.2024 & 03.07.2024 at Mumbai. The list of participants of the meetings is enclosed at Annexure-I.

At the outset, Member Secretary WRPC welcomed all the participants of the meetings and stated that the meeting is aimed at capacity building more that to do a fault-finding exercise. He, then, requested Superintending Engineer (Protection), WRPC to take up the agenda items for discussion.

Item no. 1. Non-compliance to Reactive power requirement by Renewable Energy Generating Station (REGS) (WRLDC Agenda)

Agenda Background:

As per clause B 2(1) in Part-II of CEA Technical Standards for Connectivity to the Grid (Amendment) Regulation 2013, REGS shall be capable of providing reactive power at least up to the limits of +/- 0.95 pf. Considering this, if a plant runs at zero active power, ideally reactive power exchange shall be zero. While checking the compliance in real-time operation, it is observed that the reactive power is being injected into the Grid during no-generation in the wind plants. Apart from this, few REGS are not able to supply/absorb reactive power up to the limits specified. The details of such plants are tabulated below:

Sl. No.	REGS	Installed Capacity (MW)	Type	Point of Interconnection (Pooling station)	Owner	Non-compliance
1	Baranda	168	Wind	Bhuj-PS	Avikiran Solar India Private Limited/ ENEL	21 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
2	Dayapar	526	Wind	Bhuj-PS	INOX Green Energy Services Limited	24 MVAr injection during no generation period. 60 MVAr SVG is planned. Shortfall in reactive power injection and absorption capabilities.
3	Gadhsisa	300	Wind	Bhuj-PS	ReNew Power	12 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
4	Kotda Madh	300	Wind	Bhuj-PS	Netra Wind Private Limited/Alf	13 MVAr injection during no generation period. Shortfall in

Sl. No.	REGS	Installed Capacity (MW)	Type	Point of Interconnection (Pooling station)	Owner	Non-compliance
					anar	reactive power absorption capabilities.
5	Nanavalka	300	Wind	Bhuj-PS	Alfanar Energy Private Limited	10 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
6	Naranpar	300	Wind	Bhuj-PS	Green Infra Wind Energy Limited-III/ Sembcorp	16 MVAr injection during no generation period. Shortfall in reactive power injection and absorption capabilities.
7	Ratadiya	555	Wind	Bhuj-PS	Adani Wind Energy Kuttchh One Limited Adani Wind Energy Kuttchh Three Limited Adani Wind Energy Kuttchh Five Limited	18 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
8	Vadva	250	Wind	Bhuj-PS	Green Infra Wind Energy Limited-II/ Sembcorp	11 MVAr injection during no generation period. Shortfall in reactive power injection and absorption capabilities.
9	Nakhatrana	300	Wind	Bhuj-II-PS	Adani Wind Energy Kuttchh Four Limited	13 MVAr injection during no generation period. 50 MVAr SVG is being installed.
10	Bhuvad	230	Wind	Bhachau-PS	ReNew Power	17 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
11	Ostro Kuttchh	300	Wind	Bhachau-PS	ReNew Power	21 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
12	Khakarda	250	Wind	Jamkhambaliya-PS	Apraava Energy Private Limited	7 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
13	Pritamnagar	324	Wind	Indore-PS	Adani	12 MVAr injection

Sl. No.	REGS	Installed Capacity (MW)	Type	Point of Interconnection (Pooling station)	Owner	Non-compliance
					Wind Energy MP One Limited	during no generation period. Shortfall in reactive power absorption capabilities.
14	Radhanesda Solar Power Park	700	Solar	Radhanesda-PG	Gujarat Power Corporation Limited (GPCL) [TPREL, ENGIE, GIPCL, GSECL, SGEL]	50 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
15	Ramnagar Pahad	250	Solar	Rewa-PS	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	Shortfall in reactive power injection and absorption capabilities. During night time, reactive power injection
16	Barsaithadesh	250	Solar	Rewa-PS	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	Shortfall in reactive power injection and absorption capabilities.
17	Badwar	250	Solar	Rewa-PS	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	Shortfall in reactive power capability. 2x40 MVAr SVGs are being installed.
18	Kawas	56	Solar	Kawas	NTPC REL	1.6 MVAr injection during no generation period. Shortfall in reactive power absorption capabilities.
19	Jhanor	20	Solar	Jhanor	NTPC REL	Shortfall in reactive power injection and absorption capabilities.

Discussions in the meeting:

SE (P) WRPC briefed the agenda background and stated that reactive power injections have been observed at the POI of the REGS when there is no power generation. It might be because the REGS have not taken due care of the reactive power injection of the dedicated lines of the REGS with grid interconnection during the planning stage.

WRLDC requested REGS to confirm reactive power absorption capability at the PV inverters in the solar power plant and of standstill WTGs. They suggested that due to inadequate capability during night mode/standstill condition from Inverter/WTG, additional dynamic reactive compensation is to be provided for meeting the compliance by REGS. They also

opined that REGS shall generally ensure that the power plant controller (PPC) is in voltage control mode until specified during real-time operation.

WRLDC highlighted that the REGS given in the table have not implemented any corrective action for shortfall in reactive power injection capability even though it is mandated to do during connectivity stage itself. Undertakings given for installation of adequate compensation while seeking FTC are not honored by REGS. The following measures are yet to be taken by few REGS as listed in the table-

a. Expedite the pending Assessment studies for dynamic reactive power compensation requirement.
b. Installation & commissioning of requisite quantum of dynamic reactive compensation.

WRLDC also informed that in real-time while testing the reactive power capability of the REGS, tripping of WTG/Inverters were observed on account of high voltage at terminals of WTG/Inverters. This could be due to the absence of local coordinated Q/V control. RE developers to confirm and utilize the provision of local coordinated Q/V control to avoid any loss of active power generation due to tripping of WTG/Inverters during reactive power support under steady state conditions.

SE(P) WRPC opined that the information given in the table indicates that there is reactive power injection at the POI during no-generation or low power generation period of REGS and dynamic compensation may not be required to address the issue. The REGS can install proper size fixed rectors to absorb reactive power during no generation period. Dynamic compensation may be required to address a dynamic reactive power absorption/generation during the normal power generation period of the REGS. Therefore, REGS can installed fixed rectors of proper size which would be a cheap and fast implementable solution. If the reactive power requirement can be met by the existing invertors/SVS, the same may be utilized by the REGS. Further during no generation of active power, the injection/drawl of zero reactive power is practically impossible.

The following actions taken/planned were updated by the respective REGS/RE-developers:

SN	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
1	Baranda	168	Wind	Avikiran Solar India Private Limited/ ENEL	M/s Avikiran informed 1x20 MVAr SVG is planned based on the revised reactive power study, study report and timeline for SVG commissioning would be shared.
2	Dayapar	526	Wind	INOX Green Energy Services Limited	M/s IGESL informed 2x30 MVAr SVG is commissioned on 26.06.2024, Revised reactive power study report would be shared for assessment of shortfall in injection side & corrective

SN	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
					actions would be taken.
3	Gadhsisa	300	Wind	ReNew Power	Action plan would be confirmed in 2 months
4	Kotda Madh	300	Wind	Netra Wind Private Limited/Alfanar	Action plan would be confirmed in 2 months
5	Nanavalka	300	Wind	Alfanar Energy Private Limited	Action plan would be confirmed in 2 months
6	Naranpar	300	Wind	Green Infra Wind Energy Limited-III/ Sembcorp	M/s GIWEL-III informed 119 MVAr SVG is proposed and will be commissioned by Oct'24 ad Reactive power assessment will be submitted.
7	Ratadiya	555	Wind	Adani Wind Energy Kuttchh One Limited Adani Wind Energy Kuttchh Three Limited Adani Wind Energy Kuttchh Five Limited	M/s Adani has taken up with OEM for reactive power absorption through WTG standstill mode. Action plan with timelines to be submitted by Aug'24
8	Vadva	250	Wind	Green Infra Wind Energy Limited-II/ Sembcorp	M/s GIWEL II informed 89 MVAr SVG is proposed and will be commissioned by Oct'24 and Reactive power study report will be submitted.
9	Nakhatrana	300	Wind	Adani Wind Energy Kuttchh Four Limited	50 MVAr SVG is commissioned on 10.05.24
10	Bhuvad	230	Wind	ReNew Power	Action plan would be confirmed in 2 months
11	Ostro Kuttchh	300	Wind	ReNew Power	Action plan would be confirmed in 2 months
12	Khakarda	250	Wind	Apraava Energy Private Limited	Action plan would be confirmed in 2 months
13	Pritamnagar	324	Wind	Adani Wind Energy MP One Limited	1. M/s Adani has taken up with OEM for reactive power absorption through WTG standstill mode. 2. Action plan with timeliness would be submitted by Aug'24.
14	Radhanesda Solar Power Park	700	Solar	Gujarat Power Corporation Limited (GPCL) [TPREL, ENGIE, GIPCL, GSECL, SGEL]	1. M/s TPREL informed that 1x30 MVAr SVG and 4 Nos of additional inverters would be commissioned by Aug'24. 2. M/s ENGIE informed that 64 MVAr SVG would be delivered at site by Jul'24 & commissioning by 15.08.2024. 3. M/s SGEL informed that 1x30 MVAr SVG would be commissioned by 15.09.2024. 4. M/s GIPCL informed that 1x40 MVAr SVG along with 10 MW additional inverters would be commissioned by Nov'24.
15	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	1. Reactive power assessment would be submitted. 2. Action plan would be confirmed in 2 months. 3. WRLDC to share reactive power study submitted by M/s ACME (now Athena) during FTC to Athena by end of today (i.e. 03.07.2024).

SN	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
16	Barsaithadesh	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	1. Reactive power assessment would be submitted. 2. M/s Arinsun informed that 2x60 MVAr SVGs would be commissioned by 15.8.2024.
17	Badwar	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	1. Reactive power assessment would be submitted. 2. M/s Mahindra informed that 2x40 MVAr SVGs are installed at site and commissioning would be completed by end of Jul'24.
18	Kawas	56	Solar	NTPC REL	NTPC informed that earlier few inverters were enabled with night time SVG mode. However, those inverters were failed. Now the issue has been taken up with OEM and expected to be resolved by 15.07.2024.
19	Jhanor	20	Solar	NTPC REL	NTPC informed that 9 MVAr cap-bank has been commissioned.

Member Secretary WRPC requested REGS to take up the needful actions immediately and honored the commitments made during the meeting.

Item no. 2. Non-compliance of various controls (Active and Reactive) at Point of Interconnection (POI) by Renewable Energy Generating Station (REGS) (WRLDC Agenda).

In compliance to clause 2(17) of CEA Technical Standards for Connectivity to the Grid Regulation, REGS are required to control and operate their plant at POI. The relevant clause is given below:

> *"Interconnection point" means a point on the grid, including a sub-station or a switchyard, where the interconnection is established between the facility of the requester and the grid and where electricity injected into or drawn from the grid can be measured unambiguously for the requester"*

The controls include active power, reactive power and frequency control at the point of Interconnection. These controls are done by Power Plant Controller (PPC).

WRLDC is following up this issue with ISTS REGS continuously. However, 10 out of 31 REGS are yet to comply with the requirements since their commissioning. The details are given below:

SN	REGS	Installed Capacity (MW)	Date of Commissioning	Type	Owner	POI
1	Baranda	168	19.08.2021	Wind	Avikiran Solar India Private Limited/ ENEL	220kV Bhuj-PS
2	Gadhsisa	300	15.07.2023	Wind	ReNew Power	220kV Bhuj-PS

3	Naranpar	300	21.06.2020	Wind	Green Infra Wind Energy Limited-III/ Sembcorp	220kV Bhuj-PS
4	Vadva	250	03.04.2020	Wind	Green Infra Wind Energy Limited-II/ Sembcorp	220kV Bhuj-PS
5	Bhuvad	230	07.02.2021	Wind	ReNew Power	220kV Bhachau-PG
6	Ostro	300	05.12.2022	Wind	ReNew Power	220kV Bhachau-PG
7	Radhanesda Solar Power Park	700	03.04.2024 (SJVNL) 18.07.2023 (TPREL, ENGIE, GIPCL, GSECL)	Solar	Gujarat Power Corporation Limited (GPCL) [TPREL, ENGIE, GIPCL, GSECL, SGEL]	Radhanesda
8	Ramnagar Pahad	250	09.01.2019	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	Rewa-PG
9	Barsaithadesh	250	17.05.2019	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	Rewa-PG
10	Badwar	250	17.01.2020/ 01.04.2023	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	Rewa-PG

Discussions in the meeting:

SE(P) WRPC briefed the above agenda background. He stated that the CEA Technical Standards and Connectivity Regulations provide that the electricity injected into or drawn from the grid can be measured at the Interconnection point (POI). The signal from such measurement points can readily be obtained by the REGS and REGS-PPC would be able to respond based on the active & reactive power and frequency at the POI. Therefore, necessary configurations of PPC need to be done by the REGS.

WRLDC opined that as mandated in CEA Connectivity Regulations, REGS shall control active & reactive power at POI. The REGS given in the table are yet to take the measurement inputs from POI end to PPC. They also suggested that in addition to the POI measurement, RE developer end measurement to PPC shall also be provided as a fail-safe mechanism. The status point of the PPC reference input selection (POI or local) is to be integrated with REMC SCADA at WRLDC. They requested RE developers to share the timelines for the completion of integration of POI input with PPC and the necessary telemetry to WRLDC SCADA.

The following actions taken/planned were updated by the respective REGS/RE-developers:

SN	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
1	Baranda	168	Wind	Avikiran Solar India	M/s Avikiran informed that PPC has

				Private Limited/ ENEL	been integrated with POI input. The PPC status would be integrated with WRLDC SCADA.
2	Gadhsisa	300	Wind	ReNew Power	ReNew agreed to address the issue by Aug'24
3	Naranpar	300	Wind	Green Infra Wind Energy Limited-III/ Sembcorp	The PPC integration with POI would be completed during the outage of the plant in Oct'24.
4	Vadva	250	Wind	Green Infra Wind Energy Limited-II/ Sembcorp	The PPC integration with POI would be completed during the outage of the plant in Oct'24.
5	Bhuvad	230	Wind	ReNew Power	The PPC integration with POI would be completed by Aug'24.
6	Ostro	300	Wind	ReNew Power	The PPC integration with POI would be completed by Aug'24.
7	Radhanesda Solar Power Park	700	Solar	Gujarat Power Corporation Limited (GPCL) [TPREL, ENGIE, GIPCL, GSECL, SGEL]	1. Master PPC commissioned and its interface with slave PPCs is pending. 2. TPREL had completed master-slave integration. 3. SJVN would complete master-slave integration by 10.8.2024. 4. ENGIE would complete master-slave integration by 15.7.2024. 5. GIPCL informed that integration with slave PPC completed. 6. GSECL was not present in the meeting. M/s GPCL was not present in the meeting.
8	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	1. PPC installed and would be commissioned by Jul'24. 2. Timeline would be confirmed for PPC integration with POI.
9	Barsaithadesh	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	1. PPC is integrated with POI. 2. The PPC status to be integrated in WRLDC SCADA. Timeline would be updated.
10	Badwar	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	1. Timeline would be confirmed for PPC integration with POI by end of today (i.e 03.07.2024)

MS WRPC concluded that a review meeting would be held to monitor the compliances as per the above-committed timelines, if required.

Item no. 3. Annual Measurement of Power Quality Parameters (Harmonics, DC Current and Flicker) (WRLDC Agenda).

Agenda background:

As per clause B1(4), reproduced below, in Part-II of CEA Technical Standards for Connectivity to the Grid Regulation, REGS are required to measure the power quality parameters annually or as and when required.

> *"Measurement of harmonic content, DC injection and flicker shall be done at least once in a year in presence of the parties concerned and the indicative date for the same shall be mentioned in the connection agreement;*
>
> *Provided that in addition to annual measurement, if distribution licensee or transmission licensee or the generating company, as the case may be, desires to measure harmonic content or DC injection or flicker, it shall inform the other party in writing and the measurement shall be carried out within 5 working days"*

WRLDC is continuously following up with the REGS to carry out power quality measurements annually from NABL-accredited labs. However, 10 out of 31 REGS are yet to carry out the power quality parameters measurement. The details of such REGS are given below-

SN	REGS	Installed Capacity (MW)	Type	Owner	Date of final commissioning/Last measurement
1	Baranda	168	Wind	Avikiran Solar India Private Limited/ ENEL	19.08.2021
2	Sidhpur	115	Wind	Torrent Solargen Limited	15.07.2023
3	Badwar	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	17.01.2020/ 01.04.2023
4	Kawas	56	Solar	NTPC REL	15.08.2022
5	Bhawsingpura	300	Solar	Masaya Solar/ UPC-AC Energy	19.03.2024
6	Umariya	350	Solar	Bheempow Energy Private Limited/O2 Power	14.04.2024
7	Ladwan	200	Solar	Avaada Sunshine Energy Private Limited	11.04.2024
8	Khavda PSS-1	1000	Solar	Adani Renewable Energy Holding Four Limited	20.01.2024
9	Radhanesda	700	Solar	Gujarat Power Corporation Limited	Not done

10	Nakhatrana	300	Wind	Adani Wind Energy Kuttchh Four Limited	Not done

Discussions in the meeting:

SE(P) WRPC briefed the above agenda and stated that the measurement of power quality is required to be done by REGS once a year or in the event of observation of the affected stakeholder, the measurement should be done in the presence of such aggrieved party. An analysis of the power quality measurement should be submitted to WRLDC/WRPC.

WRLDC informed that the RE developers are not carrying out annual power quality measurements from third-party agencies as per CEA regulations after commissioning of their plants. It has been observed that there is a delay in engaging a third-party agency to carry out the measurement. Delays in measurement at site non-availability of adequate wind & solar irradiance for 7 days have also been cited. They requested RE developers to indicate a timeline for submission of the power quality measurement report at the earliest. They also suggested that RE developers shall plan for measurement well in advance for the year and provide the compliance report as per CEA requirement.

WRLDC also opined that a power quality report from NABL-accredited third parties is needed.
On this, SE (P) WRPC stated that the measurements can be done through the instrumentation of an appropriate class of accuracy certified by an accredited agency.

The following actions taken/planned were updated by the respective REGS/RE-developers:

S. N.	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
1	Baranda	168	Wind	Avikiran Solar India Private Limited/ ENEL	Measurement completed in Aug'23, Measurement report would be submitted to WRLDC immediately.
2	Sidhpur	115	Wind	Torrent Solargen Limited	Measurement completed during 07-14 Jun'24. The report would be submitted to WRLDC within 4-5 days.
3	Badwar	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	Measurement completed for this year.
4	Kawas	56	Solar	NTPC REL	Measurement report would be submitted to WRLDC by 10.07.2024.
5	Bhawsingpura /Kanwani	300	Solar	Masaya Solar/ UPC-AC Energy	Measurement would be done by Aug'24 and report would be submitted subsequently.
6	Umariya	350	Solar	RUMSL (Bheempow Energy Private Limited/O2	No representation from M/s Beempow. RUMSL would coordinate and update.

S. N.	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
				Power)	
7	Ladwan	200	Solar	RUMSL (Avaada Sunshine Energy Private Limited)	RUMSL would coordinate and update.
8	Khavda PSS-1	1000	Solar	Adani Renewable Energy Holding Four Limited	Measurement report was submitted to WRLDC on 08.06.2024. However, violations are observed which needed to be addressed.
9	Radhanesda	700	Solar	Gujarat Power Corporation Limited	GPCL was not present in the meeting. GPCL to carry out measurement in plant level and submit the report.
10	Nakhatrana	300	Wind	Adani Wind Energy Kuttchh Four Limited	Measurement carried out in Jun'24. Measurement report would be submitted to WRLDC within one week.

MS WRPC requested WRLDC to update WRPC regarding the compliances of the commitments of the REGS as above.

Item no. 4. Corrective actions yet to be implemented by REGS in respect of Power Quality parameters violations

Agenda background:

In compliance to clause B1(4) in Part-II of CEA Technical Standards for Connectivity to the Grid Regulations, REGS are required to submit the power quality field measurement report from third party (NABL accredited labs) to WRLDC. REGSs are required to implement the corrective actions to mitigate the non-compliance highlighted by third-party. However, non-compliance in power quality parameters reported by third-party has been observed. WRLDC is following up these issues with REGS regularly. However, few of REGS are yet to update the corrective actions taken by them. Details of such REGS are listed below:

S. N.	REGS	Installed Capacity (MW)	Type	Owner	Last measurement	Shortcomings in report
1	Ostro Kuttchh	300	Wind	ReNew Power	12.07.2023	Voltage THD are out of limit for 13^{th} order voltage harmonic found out of limit on 4,5,6 & 7th day of measurement.
2	Naranpar	300	Wind	Green Infra Wind Energy Limited-III/ Sembcorp	30.07.2023	Violation in DC current injection, Voltage Harmonics measurement pending.
3	Manja	50.3	Wind	Powerica Limited	16.01.2024	Voltage harmonics (THD & individual) out of limit, Current harmonics (TDD & individual) out of limit.
4	Morjar	148.5	Wind	Srijan Energy Systems Private Limited/	27.09.2023	36^{th} and 38^{th} current harmonic fount out of limit. Long term flicker out of limit.

				Continuum Power		
5	Pritamnagar	324	Wind	Adani Wind Energy MP One Limited	29.06.2023	Long term Flicker violations.
6	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	02.02.2024	DC Current injection violation.
7	Barsaithadesh	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	14.07.2023	5th order current harmonics out of limit. Current TDD is out of limit.
8	Jhanor	20	Solar	NTPC REL	29.09.2023	Current Harmonics were out of limit for all 7 days of measurement.

Discussions in the meeting:

SE(P) WRPC briefed the above agenda and stated that current & voltage harmonics measured at the POI would not truly reflect the harmonics being injected by the REGS since the harmonic injection can be from the grid side also. Therefore, the harmonics measurement at the injection point would reflect the true picture of harmonic injection by the REGS. Also, if the existing meters of the specified accuracy class certified by an accredited agency have the provision of such measurements, it can be effectively used to measure the current & voltage harmonics. If the harmonics are observed during a certain period of time and are not continuous, then the REGS shall also try to collate the loading conditions and other system conditions during that period of time and plan the harmonic filters accordingly.

WRLDC highlighted the power quality violations pointed out in the measurement reports submitted by REGS are not addressed and no actions are initiated by RE developers for recurring violations observed in last 2-3 measurements. It is also observed that root cause analysis of the violation reported are not done by developers while submitting the compliance report.

The actions committed by REGS in the meeting are as follows:

S. N.	REGS	Installed Capacity (MW)	Type	Owner	Updates committed by REGS in meeting.
1	Ostro Kuttchh	300	Wind	ReNew Power	ReNew confirmed that voltage harmonics are due to Grid. Justification & analysis by testing body (M/s ERDA) to be submitted to WRLDC/WRPC.
2	Naranpar	300	Wind	Green Infra Wind	Action would be taken based on observations

				Energy Limited-III/ Sembcorp	of this year's measurements.
3	Manja	50.3	Wind	Powerica Limited	Powerica informed that the measurement was carried out in a low wind period resulting in the violations. They would carry out measurements for the year 2024 in high wind period and analyze the power quality issues.
4	Morjar	148.5	Wind	Srijan Energy Systems Private Limited/ Continuum Power	SESPL informed that they shall carry out the retesting for the observed violation in the previous measurements and take corrective actions accordingly.
5	Pritamnagar	324	Wind	Adani Wind Energy MP One Limited	M/s Adani informed that the violations in the previous measurement were due to the tripping of the 33kV feeders during measurement. It was suggested that such a period can be ignored as per the relevant standards for power quality assessment provided that clarification shall be provided for such cases in the report submitted to WRLDC.
6	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	WRLDC informed that consistent violations in power quality have been reported from measurements at Ramnagar Pahad. M/s Athena informed that they have appointed an independent agency to investigate the root cause and root cause analysis and corrective measures would be communicated within two days.
7	Barsaithadesh	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	M/s Arinsun informed that for repeated 5th-order current harmonics violations, harmonic filtration through SVG has been envisaged. Once SVG is commissioned, the measurements would be carried out again.
8	Jhanor	20	Solar	NTPC REL	M/s NTPC informed that measurements would again be done in 1st week of Oct 24 and would intimate the findings.

MS WRPC requested all the REGS/RE-developers to submit the compliances to WRLDC.

Item no. 5. Non-compliance to Low Voltage Ride Through (LVRT) by REGS (WRLDC Agenda).

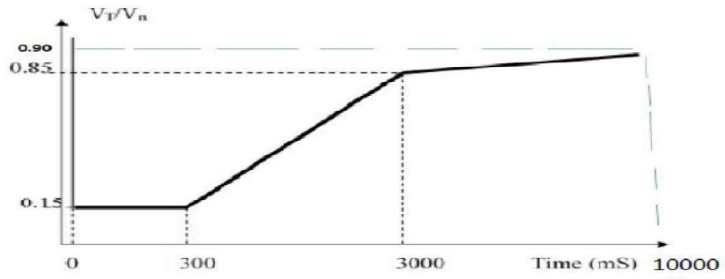
Agenda background:

As per clause B2 (3) in Part-II of CEA Technical Standards for Connectivity to the Grid Regulation, REGS are required to remain connected to the grid when voltage at the interconnection point dips. During voltage dip, reactive power support shall be provided and

if required, active power can be reduced by REGS to support reactive power. Apart from this, as soon as the fault is cleared, active power shall recover to 90% of the pre-fault value within one second. The relevant clause is given below-

"The generating station connected to the grid, shall remain connected to the grid when voltage at the interconnection point on any or all phases dips up to the level depicted by the thick lines in the following curve, namely: —

VT : Actual Voltage; Vn: Nominal Voltage—



Provided that during the voltage dip, the supply of reactive power has first priority, while the supply of active power has second priority and the active power preferably be maintained during voltage drops, provided, a reduction in active power within the plant's design specifications is acceptable and active power be restored to at least 90% of the pre-fault level within 1 sec of restoration of voltage."

WRLDC is regularly verifying compliance using PMU data and following up with REGS for addressing the shortcomings. Out of 31 REGS, 16 REGS responses during LVRT are not in line with the requirements specified in the CEA regulations. Details of such REGS is given below:

S. No	REGS	Installed Capacity	Type	Owner	Remarks
1	Kotda Madh	300	Wind	Netra Wind Private Limited /Alfanar	Event on 22.02.2024 at 16:13hrs (voltage dip 0.85pu), non-compliance is a. Generation loss (around 3 MW (15% of generation)) b. Reactive power support not provided did not restore to pre-fault values after clearance of fault
2	Nanavalka	300	Wind	Alfanar Energy Private Limited	Event on 26.04.2024 at 11:53hrs (voltage dip 0.86pu), non-compliance is a. Generation loss (around 25MW) b. Reactive power support not provided
3	Naranpar	300	Wind	Green Infra Wind Energy Limited-III / Sembcorp	Event on 07.04.2024 at 12:48hrs (voltage dip 0.80pu), non-compliance is a. Generation loss (around 1.5MW (11% of generation)) b. Reactive power support not provided did not restore to pre-

S. No	REGS	Installed Capacity	Type	Owner	Remarks
					fault values after clearance of fault
4	Ratadiya	555	Wind	Adani Wind Energy Kuttchh One Limited Adani Wind Energy Kuttchh Three Limited Adani Wind Energy Kuttchh Five Limited	Event on 07.03.2024 at 18:49hrs (voltage dip 0.87pu), non-compliance is a. Reactive power support not provided did not restore to pre-fault values after clearance of fault, hold time of 3 seconds observed. This is general observation in each event.
5	Vadva	250	Wind	Green Infra Wind Energy Limited-II/ Sembcorp	Event on 07.04.2024 at 12:48hrs (voltage dip 0.80pu), non-compliance is a. Reactive power support not provided did not restore to pre-fault values after clearance of fault
6	Nakhatrana	300	Wind	Adani Wind Energy Kuttchh Four Limited	Event on 25.04.2024 at 11:03hrs (voltage dip 0.86pu), non-compliance is a. Generation loss (around 15 MW) b. Reactive power support not provided
7	Khakarda	250	Wind	Apraava Energy Private Limited/CLP	Event on 23.03.2024 at 04:01hrs (voltage dip 0.88pu), non-compliance is a. Reactive power support not provided
8	Bhuvad	230	Wind	ReNew Power	Event on 13.03.2024 at 04:01hrs (voltage dip 0.90pu), non-compliance is a. Generation loss (around 15MW (10% of generation)) b. Reactive power support not provided did not restore to pre-fault values after clearance of fault
9	Ostro	300	Wind	ReNew Power	Event on 12.03.2024 at 09:32hrs (voltage dip 0.80pu), non-compliance is a. Reactive power support was not provided by the plant
10	Pritamnagar	324	Wind	Adani Wind Energy MP One Limited	Event on 22.04.2024 at 17:03 hrs (voltage dip 0.78pu), non-compliance is a. Generation loss (around 18 MW (10% of generation))
11	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	Event on 11.03.2024 at 13:43hrs (voltage dip 0.88pu), non-compliance is a. Reactive power support not provided was delayed
12	Barsaithadesh	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Arinsun]	Event on 11.03.2024 at 13:43hrs (voltage dip 0.89pu), non-compliance is a. Reactive power support not provided was delayed

S. No	REGS	Installed Capacity	Type	Owner	Remarks
13	Badwar	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Mahindra Renewable Private Limited]	Event on 11.03.2024 at 13:43hrs (voltage dip 0.88pu), non-compliance is a. Reactive power support not provided was delayed

Discussions in the meeting:

SE(P) WRPC briefed the agenda and stated that the above events indicate that partial outages of wind turbines are observed and reactive power response was not provided during the voltage dips. Therefore, the REGS needs to analyze the tripping of such turbines and non-responsiveness to the dips through proper reactive power response.

WRLDC highlighted that the REGS are not complying with the Low Voltage Ride Through (LVRT) requirement for the listed grid events. Also, challenges in obtaining the actual details of generation reduction from the plant due to WTG/inverter tripping were also highlighted by WRLDC. It was emphasized that there is a need to look seriously at the following aspects: -

1. Exact reasons for generation loss to be reported by RE developers.
2. Exact reason for tripping of IBRs with Root-cause analysis and timely submission of the following details to WRLDC/WRPC -
   a. WTG/Inverter & PPC event logs.
   b. Details of Fault codes generated in the WTG/Inverter during the event.
   c. Logged High-resolution data (=<10 ms) of electrical parameters from WTG/Inverter such as voltage, current, active power, reactive power, frequency etc.
3. The purpose is to meet the compliance at POI for LVRT. If any protection being used for Lines, ICTs, Cables, IDTs, and Inverters is limiting the plant from meeting CEA compliance at the Interconnection point (POI) resulting in unwarranted tripping in the No-tripping zone (ride-through zone). Such protection needs to be disabled or coordinated.
4. Reason for inadequate/no reactive power support during fault.
5. Reason for delay in active/reactive power recovery due to hold time and tripping of WTG/inverters.

REGS confirmed that they would analyze the logs and records during the above events and revert to WRLDC/WRPC.

Item no. 6. Non-availability of Auxiliary power supply for substation auxiliaries at REGS (WRLDC Agenda).

Agenda background:

In compliance to clause 6 in Part-III of CEA Technical Standards for Connectivity to the Grid Regulation, REGS are required to have an additional arrangement to ensure auxiliary power supply for their generation switchyard. The relevant clause is given below-

> *"Power Supply to Sub-Station Auxiliaries, shall:*
>
> *(a) for alternating current (AC) supply (Applicable to new substation): 220 kV and above: Two high tension (HT) supplies shall be arranged from independent sources. One of the two high tension supplies shall be standby to the other. In addition, an emergency supply from diesel generating (DG) source of suitable capacity shall also be provided. 66 kV and below 220 kV: There shall be one HT supply and one diesel generating source. 33 kV and below 66 kV: There shall be one HT supply.*
>
> *(b) For direct current (DC) Supply (Applicable to new sub-stations): Sub-stations of transmission system for 132 kV and above and sub-stations of all generating stations: There shall be two sets of batteries, each equipped with its own charger. For sub-stations below 132 kV: There shall be one set of battery and charger."*

However, many of the REGS are not complying to this requirement. The status of such REGS is given below:

S. No	REGS	Type	Installed Capacity	Connect-ivity Voltage	Status
1	Baranda (Avikiran/ENEL)	Wind	168	220kV	HT-2 supply Not Available
2	Dayapar (Inox, Continuum, Adani, Torrent)	Wind	526	220kV	HT-2 supply Not Available
3	Gadhsisa (Renew)	Wind	300	220kV	HT-2 supply Not Available
4	Naranpar (GIWEL-III/Sembcorp)	Wind	300	220kV	HT-2 supply Not Available
5	Ratadiya (Adani1,3,5)	Wind	555	220kV	1. HT supply Not Available 2. DG set not available
6	Vadva (GIWEL-II, Sembcorp)	Wind	250	220kV	HT-2 supply Not Available
7	Nakhatrana (Adani4)	Wind	150	220kV	HT-2 supply Not Available
	Dedhiya (Adani4)	Wind	150	220kV	HT-2 supply Not Available
8	Khakarda (Apraava)	Wind	250	220kV	HT2 supply Not Available: 200kVA being availed from PGVCL expected by 5.6.2024
9	Bhuvad (Renew)	Wind	230.1	220kV	HT-2 supply Not Available
10	Ostro (Renew)	Wind	300	220kV	HT-2 supply Not Available
11	Pritamnagar (Adani/SBESS)	Wind	324.4	220kV	To be expedited
12	Radhanesda 220/33kV (GPCL/GETCO/TPREL /GIPCL/ENGIE/GSECL/SGEL)	Solar	700 MW Pooling station	220kV	To be expedited
13	Gandhar (NTPC)	Solar	20	220kV	To be expedited

S. No	REGS	Type	Installed Capacity	Connect-ivity Voltage	Status
14	Kawas (NTPC)	Solar	56	220kV	To be expedited
15	Raipur (Sherisha/Refex)	Solar	50	220kV	To be expedited
16	Bhawsinghpura (Masaya/UPC-AC)	Solar	150	220kV	DG set not available
	Kanwani (Masaya/UPC-AC)	Solar	150	220kV	DG set not available
17	Badwar (RUMSL/Mahindra)	Solar	250	220kV	To be expedited
18	Ramnagar Pahad (RUMSL/Athena)	Solar	250	220kV	To be expedited
19	Barsaithadesh (RUMSL/Arinsun)	Solar	250	220kV	To be expedited
20	Ladwan(RUMSL/Avaada)	Solar	200	220kV	HT-2 supply Not Available
21	Umariya(RUMSL/Bheempow/O2Power)	Solar	350	220kV	HT-2 supply Not Available
22	Khavda PSS-1 (AHRE4L)	Solar	1000	400kV	HT-2 supply Not Available
23	Khavda PSS-2 (AHRE4L)	Solar	1250	400kV	HT-2 supply Not Available
24	Khavda PSS-3 (AGEL)	Solar	175	400kV	HT-2 supply Not Available

Discussions in the meeting:

SE(P) WRPC briefed the above agenda and stated that two independent Auxiliary supply sources are required to be provided by REGS. WRLDC highlighted that there have been multiple instances of telemetry (RTU, PMU) loss being observed during grid events in real-time due to the following reasons:

a. Plants are using the power generated by the RES to supply the auxiliary loads. There is no provision for alternate HT supply at the plant from DISCOMs.
b. The DG set was not auto-started in the above event in many cases. Even in some REGS, DG sets are not installed yet.
c. Adequate battery backup for the PMU and SCADA data is not available in the event of the tripping of the evacuation line of the REGS.

WRLDC apprised that as per the CEA Technical Standards for Connectivity to the Grid Regulation, REGS connected at 220kV & above shall have:

a. Alternative standby HT supply (Main-1 & Main-2)
b. Emergency supply from DG set of suitable capacity
c. Ensure two sets of batteries with chargers

The action plan for availing HT supply from local DISCOMs and timelines for installation of DG sets updated by REGS/RE-Developers is as follows:

S. N.	REGS	Type	Installed Capacity	Connectivity Voltage	Status-Action
1	Baranda (Avikiran/ENEL)	Wind	168	220kV	HT-2 supply not available. Agreed to address within 2 months.

S. N.	REGS	Type	Installed Capacity	Connectivity Voltage	Status-Action
2	Dayapar (Inox, Continuum, Adani, Torrent)	Wind	526	220kV	HT-2 supply not available. Applied to DISCOM for HT supply.
3	Gadhsisa (Renew)	Wind	300	220kV	HT-2 supply not available. Action taken would be updated within one week.
4	Naranpar (GIWEL-III/Sembcorp)	Wind	300	220kV	HT-2 supply not available. Agreed to address within 2 months.
5	Ratadiya (Adani1,3,5)	Wind	555	220kV	1. HT supply not available- Action taken would be informed within 2 weeks. 2. DG set not available- Would be installed within 2 months.
6	Vadva (GIWEL-II, Sembcorp)	Wind	250	220kV	HT-2 supply not available Agreed to address within 2 months.
7	Nakhatrana (Adani4)	Wind	150	220kV	HT-2 supply not available- Action taken would be informed within 2 weeks.
	Dedhiya (Adani4)	Wind	150	220kV	HT-2 supply not available - Action taken would be informed within 2 weeks.
8	Khakarda (Apraava)	Wind	250	220kV	HT2 supply not available: 200kVA being availed from PGVCL expected by 05.06.2024
9	Bhuvad (Renew)	Wind	230.1	220kV	HT-2 supply not available. Action taken would be updated within one week.
10	Ostro (Renew)	Wind	300	220kV	HT-2 supply not available. Action taken would be updated within one week.
11	Pritamnagar (Adani/SBESS)	Wind	324.4	220kV	Action taken would be informed within 2 weeks.
12	Radhanesda 220/33kV (GPCL/GETCO/TPREL /GIPCL/ENGIE/GSECL/ SGEL)	Solar	700 MW Pooling station	220kV	HT-2 supply not available - Action taken would be informed within 2 weeks.
13	Gandhar (NTPC)	Solar	20	220kV	Already available in existing plant. Would be checked as per CEA requirement and confirmed.
14	Kawas (NTPC)	Solar	56	220kV	Already available in existing plant. Would be checked as per CEA requirement and confirmed.
15	Raipur (Sherisha/Refex)	Solar	50	220kV	No representative from Sherisha was present in the meeting
16	Bhawsinghpura (Masaya/UPC-AC)	Solar	150	220kV	DG set not available- Actions taken would be updated within one month.
	Kanwani (Masaya/UPC-AC)	Solar	150	220kV	DG set not available- Actions taken would be updated within one month.
17	Badwar (RUMSL/Mahindra)	Solar	250	220kV	DG is available. HT supply status would be confirmed by end of today.
18	Ramnagar Pahad (RUMSL/Athena)	Solar	250	220kV	DG would be installed & HT supply would be availed.

S. N.	REGS	Type	Installed Capacity	Connectivity Voltage	Status-Action
19	Barsaithadesh (RUMSL/Arinsun)	Solar	250	220kV	DG is available and the detail would be shared. HT supply would be availed.
20	Ladwan (RUMSL/Avaada)	Solar	200	220kV	HT-2 supply not available- RUMSL would coordinate & update.
21	Umariya (RUMSL/Bheempow/ O2Power)	Solar	350	220kV	HT-2 supply not available - RUMSL would coordinate & update.
22	Khavda PSS-1 (AHRE4L)	Solar	1000	400kV	HT-2 supply not available - Would update within two weeks.
23	Khavda PSS-2 (AHRE4L)	Solar	1250	400kV	HT-2 supply not available - Would update within two weeks.
24	Khavda PSS-3 (AGEL)	Solar	175	400kV	HT-2 supply not available - Would update within two weeks.

MS WRPC requested to update the status to WRLDC.

Item no. 7. Timely submission of Disturbance Recorder (DR) and Event Logger (EL) for event analysis by REGS (WRLDC Agenda).

Agenda background:

As per IEGC 37.2, various timelines have been set for submission of Disturbance Recorder (DR), Event Logger (EL) and Event analysis following any Grid disturbance / Grid Incidence. Status of submission of DR/EL in WRLDC tripping portal is being flagged in Operation Coordination Committee Meeting (OCCM), which is held every month. The following issues are being observed mainly from REGS:

a) The required data is not being received on time as specified in IEGC, even at the time of issuance of OCC Agenda by WRPC (i.e mid of next month).
b) DRs of REGS end only are being uploaded by REGS in the tripping portal. DRs of remote end / Pooling stations are not being uploaded by REGS.
c) pdf files are being uploaded in portal (with duration less than 400 ms) instead of .cfg and .dat format files. As per regulations and standards, the duration of DRs should be at least 3 seconds (0.5s pre-fault and 2.5s post fault)
d) Event Loggers are being uploaded instead of DRs (in the place provided in WRLDC Tripping portal)

Incidences in REGC during April-2023 to April-2024				
	Submitted	Not Submitted	Only One end Submitted	Total Incidences
Kotda Madh	4	4	7	15
Dayapar	1	0	6	7
Bhuvad	0	0	1	1
Naranpar	0	7	1	8

Incidences in REGC during April-2023 to April-2024				
	Submitted	**Not Submitted**	**Only One end Submitted**	**Total Incidences**
Vadva	0	3	4	7
Gadhsisa	4	5	5	14
Ostro	2	5	1	8
Ratadiya	2	0	0	2
Pritam Nagar	7	1	3	11
Khakharda	1	0	1	2
Baranda	0	0	1	1
Sidhpur	1	0	0	1
Ramnagar	0	0	1	1
Nakhatrana (Adani)	0	1	0	1
Bhavsingpura	0	0	1	1
Dedhiya	1	0	0	1
Nanavalka	1	0	0	1
Baranda	0	2	4	6
Sherisha	0	1	0	1
Barsaitadesh	0	1	0	1
Nakhatrana (Srijan)	0	1	0	1
Umariya / RUMSL	0	3	0	3
Khavda PSS-2	0	1	0	1

Summary of events-

Summary Of DR Submission for April 2023-April 2024	
Submitted	24
Not Submitted	35
Only One end Submitted	36
Total Incidences	95

Discussions in the meeting:

SE (P) WRPC briefed the agenda and requested all the REGS to upload the reports, event logs and DRs on the WRLDC tripping portal as per the timelines given in IEGC 2023.

WRLDC informed that the following issues are being observed mainly from REGS:

1. The required data is not being received on time as specified in IEGC even after following up in OCCM/PCM.
2. DRs of REGS end are only being uploaded by REGS in the tripping portal. DRs of remote end / pooling stations are not being uploaded by REGS.
3. Non-availability of provision to extract DRs.

4. Improper DR configuration w.r.t recording time & digital channels are observed. *.pdf* files are being uploaded in portal (with duration less than 400 ms) instead of .cfg and .dat format files. As per CEA regulations and standards, the duration of DRs should be at least 3 seconds (0.5s pre-fault and 2.5s post fault).

WRLDC highlighted the need for uniformity in protection settings philosophy for all transmission elements within the plant facility & proper DR configuration in RE plant. They also shared the details of technical report from Forum of Load Despatchers (FOLD) on DR standardisation which can be adopted by RE developers.

As regard to issues raised by REGS in the submission of remote end DRs, WRLDC agreed to take up and coordinate with other ISTS licensees owing and maintaining the remote S/Ss for submission of DR of their end viz. POWERGRID through the upcoming PCM of WRPC.

Item no. 8. Long pending issues wrt. Phasor measurement units at REGS (WRLDC Agenda).

Agenda background:

As per the connection offer (Con-5) issued by CTUIL to respective REGS, the PMU installation is mandated to each REGS at their generating station end. Based on this requirement, respective REGS is installing PMUs at their end. However, few issues are observed from PMUs at REGS which are highlighted in subsequent sections.

Apart from the above, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulation 2022 has mandated installation of PMUs at all REGS having capacity 50 MW and above. Clause 48(6) of said regulation is reproduced below-

> *"(a) Synchrophasor measurement using Phasor Measurement Units along with fibre optic connectivity, Global Positioning System Receiver and communication equipment shall be provided for monitoring the entire interconnected grid on real time basis at substations of 400 kV and above voltage level, switchyard of generating stations at 220 kV and above voltage level, Alternating Current side of converter bays of High Voltage Direct Current stations and pooling point of renewable energy generating stations of fifty megawatt and more and Battery Energy Storage System of fifty megawatt and more.*
>
> *(b) Phasor Measurement Units shall comply with IS 60255-118-1-2018.*
>
> *(c) The dispersedly located Phasor Measurement Units shall communicate with Phasor Data Concentrators installed at certain strategic locations at State, Regional and National level."*

WRLDC is continuously following up with respective REGS. However, few issues as detailed below, are yet to be addressed by respective REGS-

8.A Non-installation of PMU at REGS

The list of REGS, which are yet to commission the PMUs as specified in the connection agreement issued by CTUIL, are given below:

SN	REGS	IC (MW)	Type	Owner	Issue
1	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	As per con-5 issued by CTUIL dt. 03-05-2018, PMU data of all the feeders need to be provided to WRLDC. However, the PMU installation is still pending for 220kV Ramnagar-Rewa Ckt-2. Several reminders have been sent for the same by WRLDC.
2	Solapur	23	Solar	NTPC REL	As per the connection agreement of 23MW solar plant dt. 02-11-2022, Applicant to use existing communication infrastructure for sending data. The earlier connection agreement issued on 27-05-2015 for NTPC TPS, PMU data need to be provided for all feeders which is still pending. NTPC is continuously extending the committed schedule of PMU installation of December- 2022.

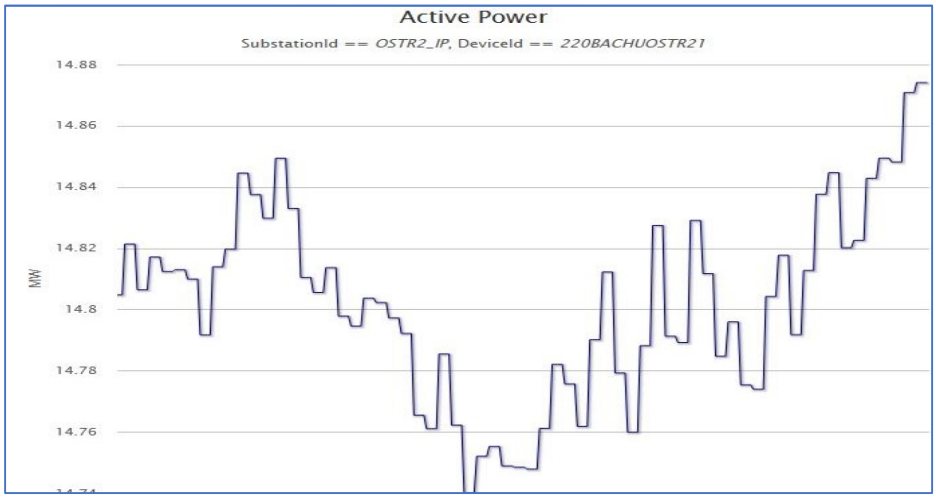
Discussions in the meeting:

The updates obtained in the meeting are as follows;

SN	REGS	IC (MW)	Type	Owner	Meeting discussion
1	Ramnagar Pahad	250	Solar	Rewa Ultra Mega Solar Limited (RUMSL) [Athena Power]	RUMSL informed that the pending PMU installation on 220 kV Ramnagar-Rewa-ckt 2 is in discussion with POWERGRID. RUMSL would give timeline for completion of the work.
2	Solapur	23	Solar	NTPC REL	NTPC informed that the PMU procurement is in bidding stage and it would be completed by Dec'24. The commissioning is expected by Mar'25.

8.B Step data reporting from PMUs at REGS

PMUs are designed and installed at sites with a reporting rate of 40ms to WRLDC control centre. However, the MW and MVAr values of PMU at Ostro Kuttchh are not reporting at a rate of 40ms. The issue has been taken up with M/s ReNew Power by WRLDC. However, so far it has not been resolved.



Discussions in the meeting:

ReNew informed that there is a need for firmware upgrade in the PMU to resolve the issues. And they are facing challenges in OEM support as the PMU model used is now absolute.

Item No. 9: Any Other Issues:

9.1:

WRLDC emphasized on the following;

a. The need for trained and competent personnel to be onsite at renewable energy plants.

b. Promptly addressing any issues like reporting of RTUs/PMUs, resolving the issues in coordination with OEMs within reasonable time, adhering to RLDC direction regarding resolution of PPC issues, telemetry issues

c. Renewable energy (RE) developers should frequently update contact details of their nodal persons and communication hierarchy for each plant.

9.2:

M/s Adani Green Energy representative enquired whether they can provide Line Differential Relays for line protection for dedicated lines from the injection point to the Grid Interconnection point to have selective protection of the transmission lines.

SE(P), WRPC opined that the Line Differential Protection is the most reliable unit protection for Line protection. It is generally costlier than Line distance protection and therefore, not preferred. However, as per the philosophy of two main protections for transmission line, the relays should be based on two different principles to have complete redundancy and the REGS should take care of this.

The meeting ended with a thanks of vote to the chair.

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Annexure-1

Details of Participants attending meeting on 21.06.2024

Sr. No	Name	Designation	Organization	Mobile Number	Email address
1.	Deepak Kumar	Member Secretary	WRPC	9999231466	ms-wrpc@nic.in
2.	P D Lone	S.E (Comml. & Prot.)	WRPC	9867622823	prc-wrpc@nic.in
3.	D N Gawali	S.E.(Oper. & Comm.)	WRPC	9930666765	opc-wrpc@nic.in
4.	Deepak Sharma	Executive Engineer	WRPC	9711250509	prc-wrpc@nic.in
5.	Vidyasagar P.	Executive Engineer	WRPC	9930940630	opc-wrpc@nic.in
6.	Saravanan. S	Associate Vice President	Powerica Limited	9152780433	saravanan.s@powericaltd.com
7.	Sreenath. T.S	Manager	Powerica Limited	9082261460	sreenath.t@powericaltd.com
8.	Abhinav Jha	Sr. Manager	Sembcorp Green Indra Ltd	9813497663	abhinav.jha@sembcorp.com
9.	Chandrakesh Kasera	Ast. Manager	Sembcorp Green Infra Ltd.	9610406162	chandrakesh.kasera@sembcorp.com
10.	Kotha Naresh	Head of O&M	ENEL (Avikiran Solar India Pvt.)	8904287870	naresh.kotha@enel.com
11.	Himanshu Khetri	Manager	ENEL (Avikiran Solar India Pvt)	8980246500	himanshu.khatri@enel.com
12.	Padmanava Swain	Lead-eBoP Asset Management	ReNew Pvt Ltd, ReNew (AP2) & Ostro Pvt Ltd	9811350188	padmanava.swain@renew.com
13.	Nitin Gohil	Cluster Lead-Kutch (Wind)	ReNew Pvt Ltd, ReNew (AP2) & Ostro Pvt Ltd	7046090317	nitin.gohil@renew.com
14.	Sajil P	State Lead – GJ (wind)	ReNew Pvt Ltd. ReNew (AP2) & Ostro Pvt Ltd	9685077613	p.sajil@renew.com
15.	Sharad Kumar Dubey	Asst. Vice President	Sembcorp Green Infra Ltd	9611786720	sharad.dubey@sembcorp.com
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