

KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

Phone : Off.: 22267034

22259719

Fax: 091 080 22282287

E-mail: ceeldckptcl@gmail.com

:ceeldckptcl@rediffmail.com



Office of the

Chief Engineer (Electy),

state Load Despatch Centre,

28, Race Course road.

Bangalore-560009

CEE/SLDC/-2211-21

Dt: 16/05/19

To,

The Secretary,
Central Electricity Regulatory Commission,
3rd & 4th Floor, Chandralok Building,
36, Janpath, New Delhi-110001.

Dear Sir,

Sub: Comments on the draft CERC (Deviation Settlement Mechanism
and related matters) (5th amendment) Regulations 2019-Reg.

Ref: No. L-1/132/2013-CERC Dated: 18-04-2019.

With reference to above subject, I am directed to submit the comments on the draft CERC (Deviation Settlement Mechanism and related matters) (5th amendment) Regulations 2019. Accordingly, the Comments/ Suggestions/ Remarks/ Objections of SLDC, KPTCL, Karnataka is herewith attached for kind information and requested to place the same before Honorable Commission to consider and issue necessary amendments on the said draft DSM Regulations.

Yours faithfully

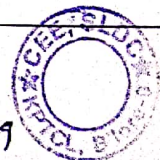
Chief Engineer (Electy)

SLDC, KPTCL, Bangalore.

Comments/Suggestions/Remarks/Objections of Karnataka on the draft CERC (Deviation Settlement Mechanism and related matters) (5th amendment) Regulations 2019 notified by CERC on 18.04.2019.

<u>Regulation No.</u>	<u>Regulation as in draft(5th Amendment)/principal Regulation</u>	<u>Comments/Suggestions/Remarks/Objections of SLDC, KPTCL, Karnataka.</u>
<p>Clause (10) of Regulation 7 of the Principal Regulations</p>	<p>4.5 Clause (10) of Regulation 7 of the Principal Regulations shall be substituted as under: "In the event of sustained deviation from schedule in one direction (positive or negative) by any regional entity (buyer or seller), such entity shall correct its position in the manner as specified under clauses (a) and (b) of this Regulation.</p> <p>(a)Up to 31.03.2020, if the sustained deviation from schedule continues for 12 time blocks, the regional entity (buyer or seller), shall correct its position by making the sign of its deviation from schedule changed or by remaining in the range of +/- 10 MW with reference to its schedule, at least once, latest by13th time block. Provided that each violation of the requirement under this clause shall attract an additional charge of 10% on the time block DSM payable / receivable as the case may be.</p> <p>(b)From 01.04.2020, if the sustained deviation from schedule continues for 6 time blocks, the regional entity (buyer or seller), shall</p>	<p><u>Comments for (a) :</u> If the sustained deviation from schedule continues for 12 time blocks, the regional entity (buyer or seller), shall correct its position by making the sign of its deviation from schedule changed or by remaining in the range of +/- 60 MW with reference to its schedule, at least once, latest by13th time block. Provided that each violation of the requirement under this clause shall attract an additional charge of 5% on the 12TH time block DSM payable / receivable as the case may be. However, Karnataka is not on par with sign Change concept, as sign change requirement contrary to the other regulation of CERC i.e., some provisions in DSM regulations itself and the IEGC. Also sign change is not at all an electrical parameter, which does not help in improvement of the electrical parameters of the grid like Voltage, Frequency, Line Loading and Impedance of the system in turn the security of the system. The reason for this decision are narrated under (b) below <u>Comments for (b):</u> Karnataka requests the Hon'ble CERC to completely annul/drop the Sign Change conditions in the DSM Regulations on the following Grounds.</p> <ol style="list-style-type: none"> 1. Karnataka being a renewable rich state has the provision of deviating up to 250 MW on the schedule in a time block. During rainy/wind season after backing down of on bar Central Generating Stations share to their technical minimum, the net CGS schedule will be around 1800 MW. During monsoon and wind season the renewable energy generation will reach a minimum of around 6500 MW with must-run hydro generation of 1000 MW, totalling to 7500 MW. The minimum thermal CGS generation will be around 1800 MW. Even after shutdown of all the state thermal units, the total minimum generation on bar will be around 9300 MW. Usually during monsoon season, Karnataka demand reduces to around 5500MW.

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correct its position, by making the sign of its deviation from schedule changed or by remaining in the range of +/- 10 MW with reference to its schedule, at least once, latest by 7th time block.

Provided that violation of the requirement under this clause shall attract an additional charge as specified below:

- From first to fifth violation; For each violation, an additional charge @ 3% of daily base DSM payable / receivable.
- From sixth to tenth violation For each violation, an additional charge @ 5% of daily base DSM payable / receivable.
- From eleventh violation onwards For each violation, an additional charge @ 10% of daily base DSM payable / receivable.

Provided further that counting of number of sign change violations under clauses (a) & (b) of this Regulation shall start afresh at 00.00 Hrs. for each day.

Provided also that payment of additional charge for failure to adhere to sign change requirement as specified under clauses (a) & (b) of this regulation shall not be applicable to:

- a. renewable energy generators which are regional entities.
- b. run of river projects without pondage
- c. any infirm injection of

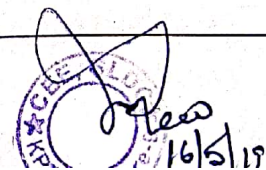
In this scenario Karnataka will be under drawing around 1000 to 2800 MW continuously even after trading of power to an extent of 1500-2000 MW. The trading of power through Power Exchange depends on the market condition on that particular day. If the bid volume is not cleared in the exchange / unable to sell under bilateral transaction then Karnataka will be continuously under drawing to an extent of 1500-4300MW. Hence, in such scenario, to correct its position by making sign of its deviation from schedule changed or by remaining in the range of +/- 10 MW with reference to its schedule is not possible.

2. Further, for under drawl above 250 MW, Karnataka will not get any amount even if the average frequency in a time block is below 50.05 Hz. Further, if the frequency in any time block is 50.10 Hz and above, Karnataka has to pay penalty/additional deviation charge at the rate of Average Clearing Price in the market or at the rate 303.04paise/kwh whichever is less for the entire quantum of under drawl in the time block. Therefore, in effect, the Karnataka will be penalized for merely being a renewable energy rich state as on the one hand there is no provision to curtail generation by renewable sources and on the other hand, will be forced to pay the additional deviation charges/penalty on account of violation of making the sign of its deviation from schedule changed or by remaining in the range of +/- 10 MW with reference to its schedule. The said stipulation in the Regulation is completely unreasonable and opposed to the mandate of the Electricity Act 2003.

3. Further, Hon'ble Delhi High Court vide their orders dated 27.03.2019 directed the CERC as follows;

In these circumstances, apart from considering the existing representations requesting for review of Regulation 7(10), the Commission shall look into other representations with respect to the submissions articulated regarding other amended Regulations including Clause 7(11a).

Since the hardships experienced by the States with regard to the implementation of the impugned Regulations have been recognized by the Hon'ble CERC, and a draft regulation is circulated for imposition of condition of sign change for every 6 time blocks w.e.f 1-04-2020, it is profusely requested to waive the penalties levied on the Regional entities on account of various clauses in Regulation 7, from 01-01-2019 to till date.


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power by a generating station prior to CoD of a unit during testing and commissioning activities, in accordance with the Connectivity Regulations.
d. any drawal of power by a generating station for the start-up activities of a unit.
e. any inter-regional deviations.
f. forced outage of a generating station in case of collective transactions on Power Exchanges.

4. Sign change requirement is contrary to the other regulations of CERC i.e., some provisions in the DSM regulation itself and the IEGC

5. Renewable rich states by virtue of Must Run Status conferred to the RE Generation, run of the river projects without pondage are facing hardships to adhere to the mandatory sign change requirements in every 6 time blocks. The forecast of RE Generation is not matured and there are no dependable weather forecasting models. The present forecast error is around 25-33% i.e., nearly one third of the generation from RE Sources could not be scheduled to a reasonable degree of accuracy.

6. The states promoting RE sources, in pursuant to the development & encouraging policies of the Central Govt. are burdened due to the impugned regulations. This is against to the policy of the Govt. of India taken up to address the Environmental concerns.

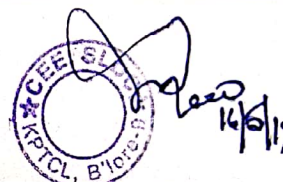
7. At present Karnataka is having combined wind and solar installed capacity of 10902MW. Even if we take an allowable forecast error of 15% in RE generation, the expected deviation could be around 1635 MW on a base RE(wind and solar) capacity of 10900 MW existing in the State of Karnataka. These RE rich states have to embed the deviations on account of their RE generation and face the Sign change consequences. This is unreasonable & biased.

8. Many of the States including Karnataka are participating in the GoI sponsored prestigious Power for All (PFA) programme wherein, 24X7 uninterrupted power is guaranteed to the Consumers. As such it is herculean task for the PFA States to implement the sign change.

9. Already States are burdened with the deviation limits of over drawal/under drawal as specified in the DSM Regulation. Imposing Sign change condition on top of this is unbearable.

10. As we are aware sustained under drawal at lower frequency range, or vice versa, is advantageous to the system. When an entity is supporting such drawals even beyond the stipulated 6 time blocks period, there is no merit in penalizing such entity in the guise of Sign Change requirement.

11. Sign Change regulation is imposed based on SCADA data whereas all Commercial implications are drawn based on SEM data. There is lot of differences in real time between those two parameters and is very difficult to implement the regulation.


CERC
16/6/19

		<p>12. After implementing the Sign Change regulation for about 4 months from 01-01-2019, it can be observed that there are more frequency excursions. The sample data/Graph showing the frequency excursion due to sign change condition is enclosed as annexure-1.</p> <p>13. The implementation of such regulation shall compel the petitioner to source the power from the contingency market of power exchanges which is made available only after 3 to 4 hours after the bids have been placed by the Petitioner or else ESCOMs have to do load shedding just for sign change.</p> <p>14. As per the Clause 5.4.2 (a & b) of IEGC Regulations issued by the Hon'ble CERC, the SLDC/SEB/Distribution Licensee & the Bulk Consumer shall initiate action to restrict the drawal within the net drawal schedule and shall ensure that requisite load shedding is carried out in its control area so that there is no over drawal. Accordingly SLDCs/ESCOMs are taking remedial measure to adhere the IEGC.</p> <p>It is therefore deserves to be reconsidered and amended as under.</p> <p>Since, Karnataka is a renewable rich state with an installed capacity of more than 13,500MW and having facing the difficulties during solar period , wind and monsoon season explained above, even from 01.04.2020 Karnataka will not be in a position to make to sign of its deviation from schedule to changed/ remaining in the range of +/-10MW reference to its schedule after the stipulated time blocks. Hence, the clause (10) regulation 7 (a) and (b) are to be dropped.</p>
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Additional Requests/Plea before the Hon'ble CERC :

1. Issue an order for deviation limit up to 500MW from schedule in a time block Karnataka (in place of existing deviation limit up to 250MW) as it is an RE rich state with installed RE capacity more than 13500MW (combined solar and wind capacity of 10900MW) and is also adding another 2000-4000MW in next two years.

Annexure III, The deviation limits for Renewable Rich States of the Principal Regulations shall be substituted as under:

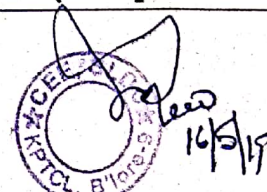
Sl No	States having combined installed capacity of Wind and Solar projects	Deviation limit (MW), "L"
1	1000-3000 MW	200
2	> 3000 <= 10000 MW	250
3	>10000 MW	500

Statement of reasons for the proposal 500 MW for the States having combined installed capacity of Wind and Solar projects more than 10000MW.

The deviation margin of 250MW is inadequate to operate the State grid:

- I. Due to difficulties/hardship explained above.***
 - II. The 15% deviation is permitted for wind and Solar plants and there is no deviation charges if the deviation is within the specified limits of + or - 15%, as per the State Commission (Forecasting, scheduling, Deviation settlement and related matters for Wind and Solar Generation sources) Regulations 2015. At present Karnataka is having combined wind and solar installed capacity of 10900MW(is adding another 2000-4000MW in next two years). Even if we take an allowable forecast error of 15% in RE generation, the expected deviation could be around 1635 MW on a base RE(wind and solar) capacity of 10900 MW existing in the State of Karnataka. Whereas the absolute quantum of Overdrawal allowed in any Time block for Karnataka is only 250 MW. Hence, the existing deviation limit of 250 MW is to be increased to 500MW in a time block.***
 - III. And also 5 Distribution Companies are operating in the State. Hence the deviation limit shall be 500 MW both for over drawal and under drawal of power.***
- 2. Whatever the amount collected so far from date of implementation of CERC ((DSM and related matters) (fourth Amendment) Regulations, 2018(from 1st Jan-2019 onwards)) from Karnataka because of sign change violation is to be refunded to Karnataka.**
 - 3. Issue an amendment in case of a seller/buyer as under**

Regulation No.	Existing	Comments/Suggestions/Remarks of SLDC, KPTCL, Karnataka.
Clause (iii) of proviso to regulation 5(1) of principal regulations	Provided that In case of schedule of a buyer (except Renewable rich State) in a time block is less than or equal to 400MW , the charges for the deviation for the under drawl in excess of 48MW shall be zero.	The proviso is to be deleted. Further, charges for deviation for the underdrawn by the buyer (except Renewable rich State) in a time block in excess of 12% schedule or 150mw, whichever is less, shall be zero. The provision of limit 48MW is to be dropped.
Clause (iv) of proviso to regulation	Provided that In case of schedule of a seller (except Renewable rich	The proviso is to be deleted. Further, The charges for deviation for the over injection by the seller (except Renewable



 KPTCL, Bangalore

5(1) of principal regulations	State) in a time block is less than or equal to 400MW , the charges for the deviation for the over injection in excess of 48MW shall be zero	rich State) in a time block in excess of 12% schedule or 150mw, whichever is less, shall be zero, except in case of injection of infirm power, which shall be governed by clause(5) of this regulation. The provision of limit 48MW is to be dropped.
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4. In clause (BII) of Annexure II (A)

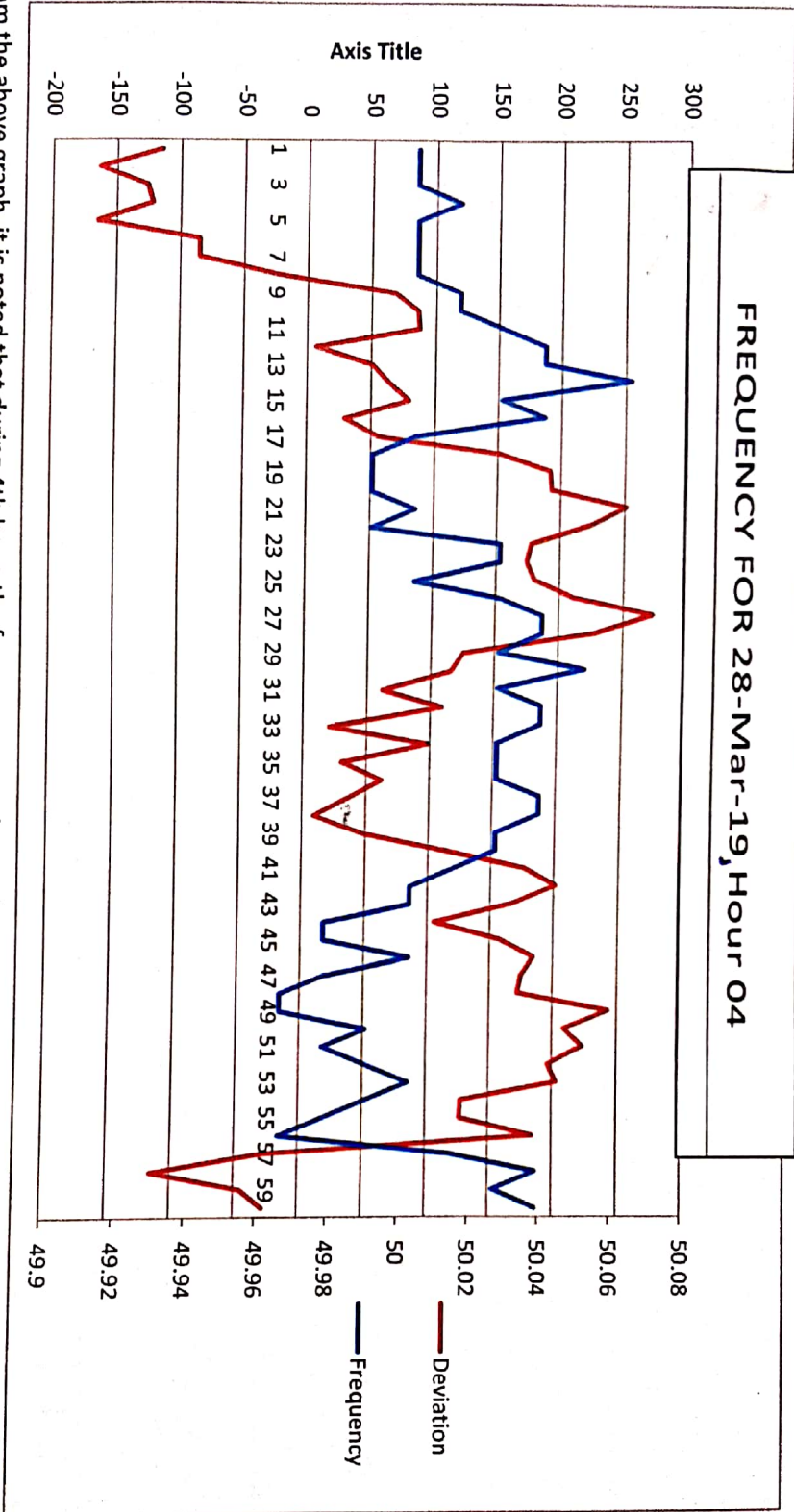
In case of renewable rich state with RE (combined installed capacity of wind and solar) installed capacity of more than 10000MW the charges recoverable by the buyer for DL (Deviation in excess of limit (500MW) proposed in Annexure III , above) in each time block when average grid frequency of the time block is below 50.05Hz shall be as under

Sl No	DL (Deviation in excess of limit(500MW) specified in Annexure III)	Charges
1	<=500MW	The charge for the Deviation corresponding to average grid frequency of the time block
2	>500 <= 600MW	Equivalent to 90% of The charge for the Deviation corresponding to average grid frequency of the time block
3	>600 <= 700MW	Equivalent to 80% of The charge for the Deviation corresponding to average grid frequency of the time block
4	>700 <= 800MW	Equivalent to 70% of The charge for the Deviation corresponding to average grid frequency of the time block
5	>800MW	Equivalent to 60% of The charge for the Deviation corresponding to average grid frequency of the time block


CHIEF ENGINEER (Ele.)
State Load Despatch Centre. KPTCL,
28, Race Course Cross Road,
BANGALORE - 560 009,

FREQUENCY;FOR 28-Mar-19, Hour 04

Ammeasata-1 (a)



From the above graph, it is noted that during 4th hour, the frequency excursion took place at every minute in a time block. Also, it is noticed that, the generation is being varied frequently, just for sign change.



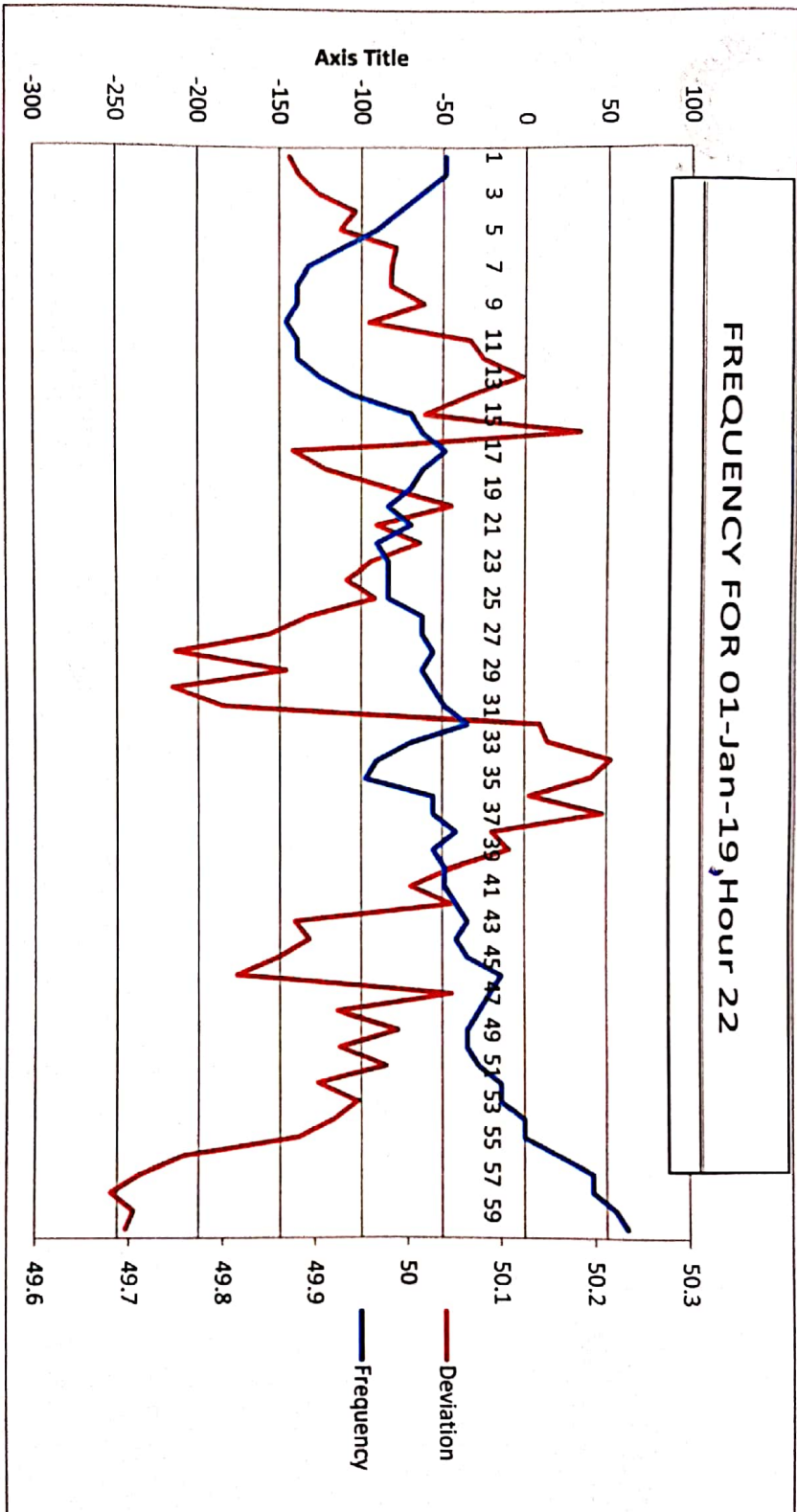
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Minutes	freq	deviation	Minutes	freq	deviation
1	50.00	-114.77	31	50.03	62.26
2	50.00	-163.03	32	50.04	109.26
3	50.00	-126.05	33	50.04	21.09
4	50.01	-121.92	34	50.03	98.09
5	50.00	-164.73	35	50.03	30.98
6	50.00	-84.97	36	50.03	62.14
7	50.00	-84.97	37	50.04	36.10
8	50.00	-22.52	38	50.04	9.26
9	50.01	68.26	39	50.03	47.98
10	50.01	86.15	40	50.03	113.96
11	50.03	87.47	41	50.01	176.55
12	50.04	6.98	42	50.00	201.08
13	50.04	50.78	43	50.00	166.99
14	50.06	63.76	44	49.98	105.53
15	50.03	79.63	45	49.98	157.43
16	50.04	29.53	46	50.00	184.32
17	50.00	55.91	47	49.98	174.86
18	49.99	151.30	48	49.97	172.26
19	49.99	191.50	49	49.97	243.23
20	49.99	192.97	50	49.99	209.04
21	50.00	251.15	51	49.98	223.11
22	49.99	223.11	52	49.99	196.66
23	50.03	177.75	53	50.00	203.23
24	50.03	173.95	54	49.99	128.21
25	50.00	180.47	55	49.98	127.48
26	50.03	211.15	56	49.97	184.71
27	50.04	273.11	57	50.01	-29.84
28	50.04	227.22	58	50.04	-115.25
29	50.03	125.65	59	50.03	-45.13
30	50.05	115.95	60	50.04	-27.36



FREQUENCY FOR 01-Jan-19, Hour 22

Ammeasures-1(b)



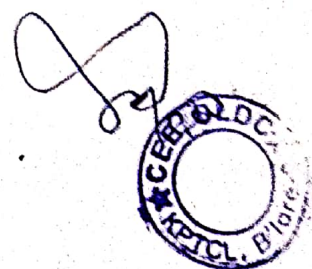
On 01-01-2019 at 22hours, the state is constrained to under draw power even though frequency is above 50.2 Hz just for sign change.

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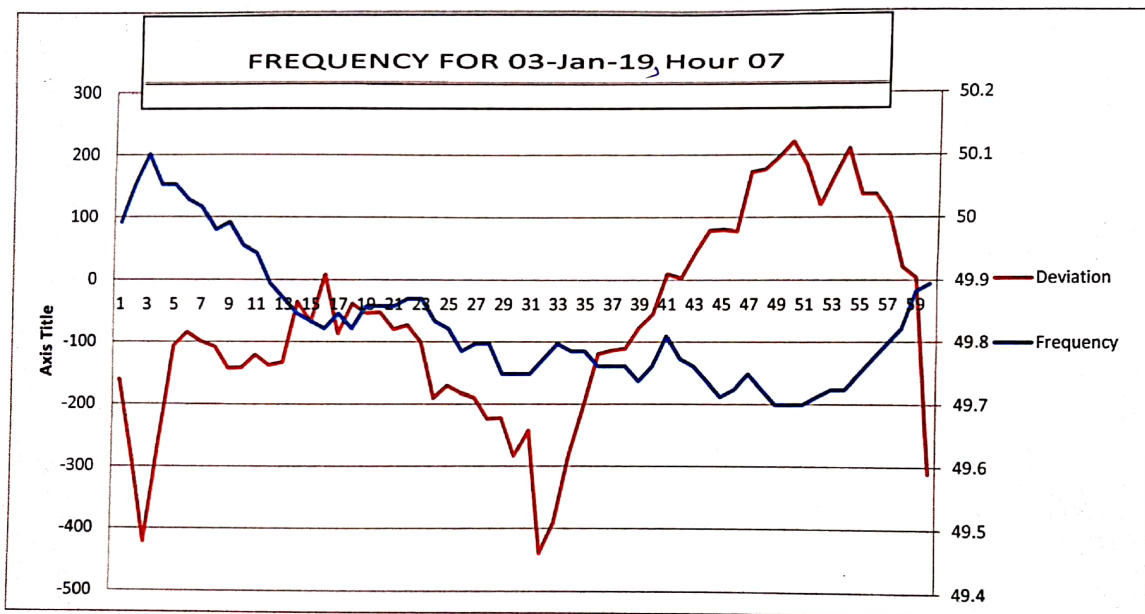


Minutes	freq	deviation	Minutes	freq	deviation
1	50.04	-144.01	31	50.04	-185.35
2	50.04	-137.92	32	50.06	9.09
3	50.02	-126.32	33	50.00	13.91
4	49.99	-103.80	34	49.97	52.40
5	49.97	-112.40	35	49.95	40.39
6	49.93	-78.98	36	50.03	3.02
7	49.89	-81.53	37	50.03	47.21
8	49.88	-82.15	38	50.05	-19.48
9	49.88	-61.63	39	50.03	-9.59
10	49.87	-95.08	40	50.04	-44.15
11	49.88	-33.54	41	50.04	-69.14
12	49.88	-25.28	42	50.05	-44.53
13	49.91	-2.02	43	50.06	-140.79
14	49.94	-33.39	44	50.05	-131.94
15	50.00	-60.77	45	50.06	-150.49
16	50.02	33.11	46	50.10	-176.65
17	50.04	-141.83	47	50.09	-44.40
18	50.02	-121.75	48	50.08	-114.03
19	50.00	-83.02	49	50.06	-77.49
20	49.98	-44.83	50	50.06	-112.74
21	50.00	-90.30	51	50.08	-84.66
22	49.97	-64.04	52	50.10	-126.38
23	49.98	-93.99	53	50.10	-102.07
24	49.98	-108.45	54	50.12	-116.56
25	49.98	-91.56	55	50.12	-138.77
26	50.02	-132.16	56	50.16	-209.14
27	50.02	-156.12	57	50.20	-235.95
28	50.03	-213.91	58	50.20	-254.01
29	50.02	-146.14	59	50.22	-239.93
30	50.03	-215.75	60	50.23	-244.79



Annexure-1(c)

FREQUENCY;FOR 03-Jan-19,Hour 07



It can be observed that just for sign change state has to over draw eventhough the frequency is 49.7Hz and below.

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Minutes	freq	deviation	Minutes	freq	deviation
1	49.99	-160.90	31	49.75	-242.72
2	50.05	-282.73	32	49.77	-439.09
3	50.10	-421.75	33	49.80	-390.82
4	50.05	-257.74	34	49.78	-280.95
5	50.05	-106.64	35	49.78	-202.41
6	50.03	-84.88	36	49.76	-119.52
7	50.02	-98.96	37	49.76	-113.78
8	49.98	-107.92	38	49.76	-110.89
9	49.99	-142.45	39	49.74	-77.11
10	49.95	-142.24	40	49.76	-55.12
11	49.94	-121.21	41	49.81	9.31
12	49.89	-138.09	42	49.77	3.12
13	49.87	-133.42	43	49.76	43.30
14	49.85	-35.82	44	49.74	78.89
15	49.83	-68.06	45	49.71	80.74
16	49.82	8.43	46	49.72	78.03
17	49.85	-86.99	47	49.75	172.61
18	49.82	-38.46	48	49.72	177.23
19	49.86	-54.01	49	49.70	197.32
20	49.86	-52.34	50	49.70	221.28
21	49.86	-80.08	51	49.70	183.93
22	49.87	-73.10	52	49.71	120.28
23	49.87	-100.56	53	49.72	166.62
24	49.83	-190.54	54	49.72	210.44
25	49.82	-170.68	55	49.75	137.26
26	49.78	-182.64	56	49.77	137.42
27	49.80	-189.74	57	49.80	105.22
28	49.80	-223.75	58	49.82	21.76
29	49.75	-222.43	59	49.88	4.15
30	49.75	-283.69	60	49.89	-310.48