PRESENTATION ON DSM

EASTERN REGIONAL POWER COMMITTEE, KOLKATA
EXPERIENCE GATHERED WHILE IMPLEMENTING THE 4TH DSM AMENDMENT

- % OF TIME FREQUENCY LYING WITHIN IEGC BAND HAS DECREASED
- % OF TIME FREQUENCY LYING IN THE HIGH FREQUENCY REGION HAS INCREASED
- SUSTAINED OVERDRAWAL HAS SIGNIFICANTLY DECREASED
FREQUENCY PROFILE

- Frequency range: < 49.9 Hz, 49.9 - 50.05 Hz, > 50.05 Hz
- Comparison between Jan-18 and Jan-19, Feb-18 and Feb-19
FREQUENCY PROFILE

Mar-18 vs Mar-19

Mar-18 vs Apr-18
FREQUENCY PROFILE
OCT-18 to MAR-19

- **Freq in Hz**
  - Max Freq
  - Min Freq

- **Percentage**
  - <49.90
  - 49.9-50.05
  - >50.05

Chart on the left shows the frequency profiles from Oct/18 to Mar/19, with Max Freq and Min Freq plotted for each month.

Chart on the right illustrates the percentage distribution of frequency ranges from Oct/18 to Mar/19.
INSTEAD OF RELAXATION OF +/− 10 MW ON SCHEDULE, RELAXATION BASED ON % OF SCHEDULE SHALL BE GIVEN.

NO. OF METER READINGS REQUIRED FOR FINDING THE ACTUAL VALUE OF DRAWAL/ INJECTION SHOULD BE CONSIDERED FOR GIVING THE RELAXATION.

RELAXATION OF SIGN CHANGE PENALTY (FROM 6\textsuperscript{TH} TO 12\textsuperscript{TH} TIME BLOCK) WOULD HAVE ADVERSE EFFECT ON MANAGING FREQUENCY. POSSIBILITY OF GAMING CAN NOT BE RULED OUT.

IT IS APPREHENDED THAT THE % TIME THE FREQUENCY REMAINING BELOW 49.9 HZ SHALL INCREASE.

POOL BALANCE MAY BE NEGATIVE IN MANY WEEKS
Sign Change Violation Penalty (01/04/19–07/04/19)

Generators

Utilities
Block-wise violation Penalty (01/04/19–07/04/19)

Utilities

Generators

Axis Title: 4th Amend, 5th Amend
<table>
<thead>
<tr>
<th>Description</th>
<th>01/04/19-07/04/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payable to the Pool</td>
<td>6830.94383</td>
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<tr>
<td>Receivable from the Pool</td>
<td>7565.67761</td>
</tr>
<tr>
<td><strong>Diff amt due capping of Gen Stations</strong></td>
<td>-734.73379</td>
</tr>
<tr>
<td><strong>ADC due to Block-wise Violation</strong></td>
<td>869.2135</td>
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<tr>
<td><strong>ADC due to sign change Violation</strong></td>
<td>973.74302</td>
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<tr>
<td><strong>POOL BALANCE(ER)</strong></td>
<td><strong>1108.22273</strong></td>
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<tr>
<td>Payable to RRAS Provider</td>
<td>94.21664</td>
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<tr>
<td>Receivable from RRAS Provider</td>
<td>94.53347</td>
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<tr>
<td>Payable to FRAS Provider</td>
<td>0.173</td>
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<tr>
<td><strong>TOTAL POOL BALANCE(ER)</strong></td>
<td><strong>1108.36656</strong></td>
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The volume limit for deviation may be made dynamic.

For the 1st time block of the day (i.e. 00.00 hrs), the volume limit for deviation (positive or negative deviation) shall be 12% of Schedule of the 1st time block or 150MW whichever is less.

Subsequently from 2nd time block onwards, the allowable volume limit for deviation shall decrease for deviation in the same direction and shall be made zero at the 12th time block.

For time blocks between 1st and 12th time blocks, the volume limit for deviation shall decrease linearly at the rate of 8.33% of Schedule of that time block or 12.5MW whichever is less.

Additional Deviation Charges at the rate of 50% of Deviation rate of the corresponding time block shall be payable by an entity for violation of volume limit in case of over-drawal/under-injection.
No Deviation Charges shall be receivable by an entity for violation of volume limit in case of under-drawal/over-injection.

For sustained deviation beyond 12\textsuperscript{th} time block, additional deviation charges at the rate of 100\% of Deviation rate of the corresponding time block shall be payable by an entity for any negative deviation (Over-drawal/under-injection)

For sustained deviation beyond 12\textsuperscript{th} time block, no deviation charges shall be receivable by an entity for any positive deviation (Under-drawal/Over-injection)
When an entity changes its sign of deviation (from negative to positive or vice-versa) in any of the 12 time blocks, the allowable volume limit for deviation and the applicable penalty shall then be calculated as proposed above by considering time block in which the sign change occurred as the 1st time block.

All existing provisions of different slabs for calculation of Additional Deviation charges for violation of volume limits and sign change may be done away with.
EXAMPLE
EXAMPLE
EXAMPLE
For first time block, score will be **zero**.

For deviation in the same direction, score will increase by one point for each time block.

For change in direction of deviation, score will reduce by one point (Minimum Score would be ZERO).

For any day(96 blocks), total score will be computed. **Graded penalty beyond a threshold score** (say 12) may be thought of.
EXAMPLE
Thank you