

Disturbance (ΔP)	Year	Installed Capacity (approximate)	$\frac{df}{dt}$	$\frac{df}{dt}$ (normalized to 1000 MW loss disturbance)	System Inertia $\Delta P / \left(\frac{df}{dt}\right)$
Generation loss of 1000 MW at Dadri (see Fig. 1)	2011	170 GW	- 0.047 Hz/s	- 0.047 Hz/s	3382 J.s
Generation loss of 1000 MW at Kudankulam (see Fig. 2)	2015	261 GW	- 0.031 Hz/s	- 0.031 Hz/s	5182 J.s
Generation loss of 2700 MW at Vindhyachal (see Fig. 3)	2019	357 GW	- 0.059 Hz/s	- 0.022 Hz/s	7279 J.s
Load loss of 1300 MW at Vedanta Sterlite (see Fig. 4)	2019	357 GW	0.023 Hz/s	0.018 Hz/s	8990 J.s

Disturbance(ΔP)	Year	Installed Capacity (approximate)	Steady State Frequency Deviation (Δf)	Δf (normalized to 1000 MW loss disturbance)
Generation loss of 1000 MW at Dadri (see Fig. 1)	2011	170 GW	- 0.248 Hz	- 0.248 Hz
Generation loss of 1000 MW at Kudankulam (see Fig. 2)	2015	261 GW	- 0.132 Hz	- 0.132 Hz
Generation loss of 2700 MW at Vindhyachal (see Fig. 3)	2019	357 GW	- 0.202 Hz	- 0.075 Hz
Load loss of 1300 MW at Vedanta Sterlite (see Fig. 4)	2019	357 GW	0.064 Hz	0.049 Hz

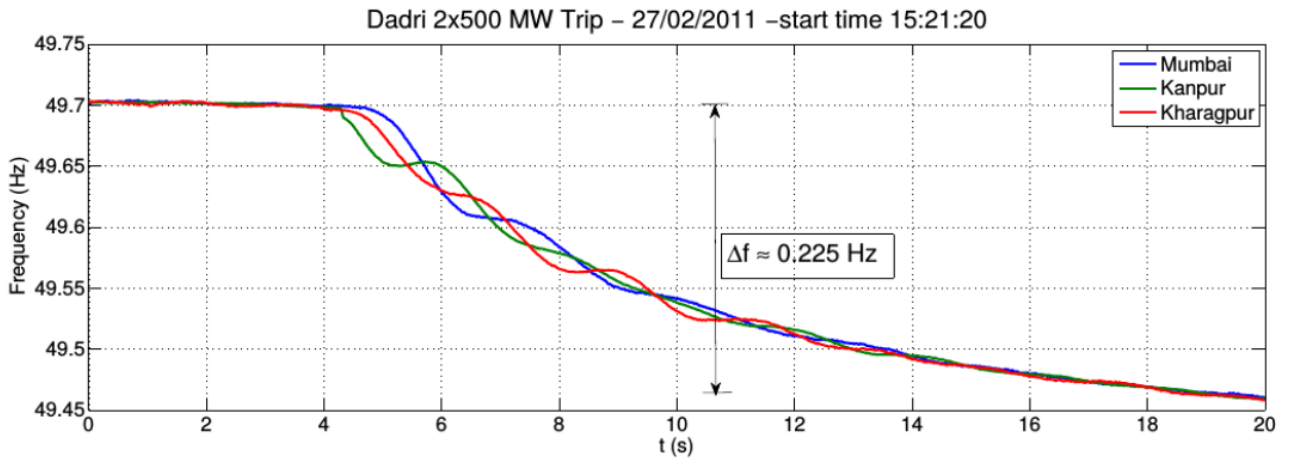


Fig .1. Frequency response due to the disturbance at Dadri in 2011 (a generation loss of 1000 MW)

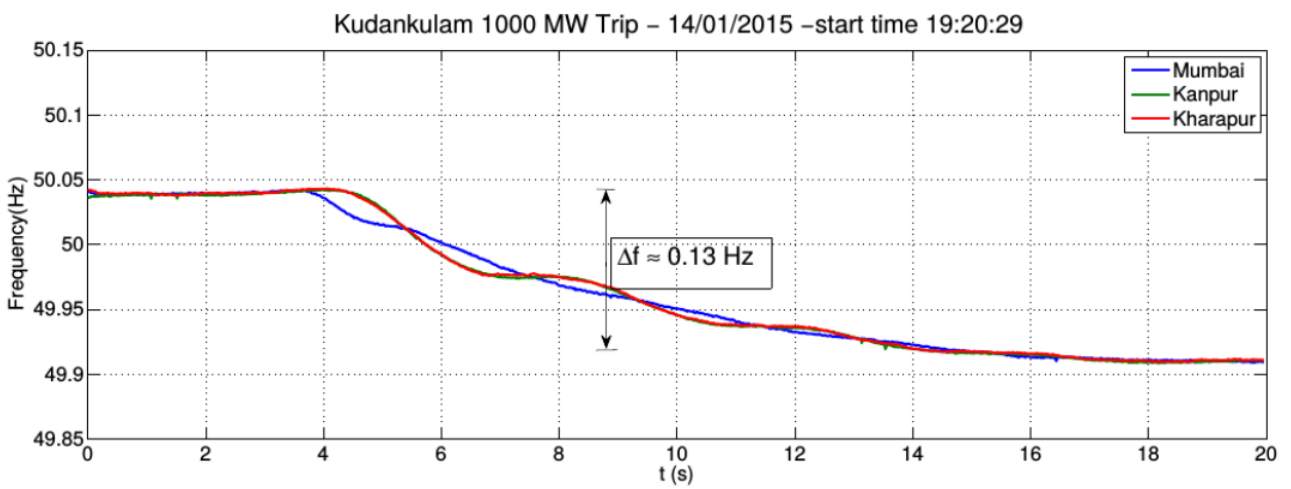


Fig. 2. Frequency response due to the disturbance at Kudankulam in 2015 (a generation loss of 1000 MW)

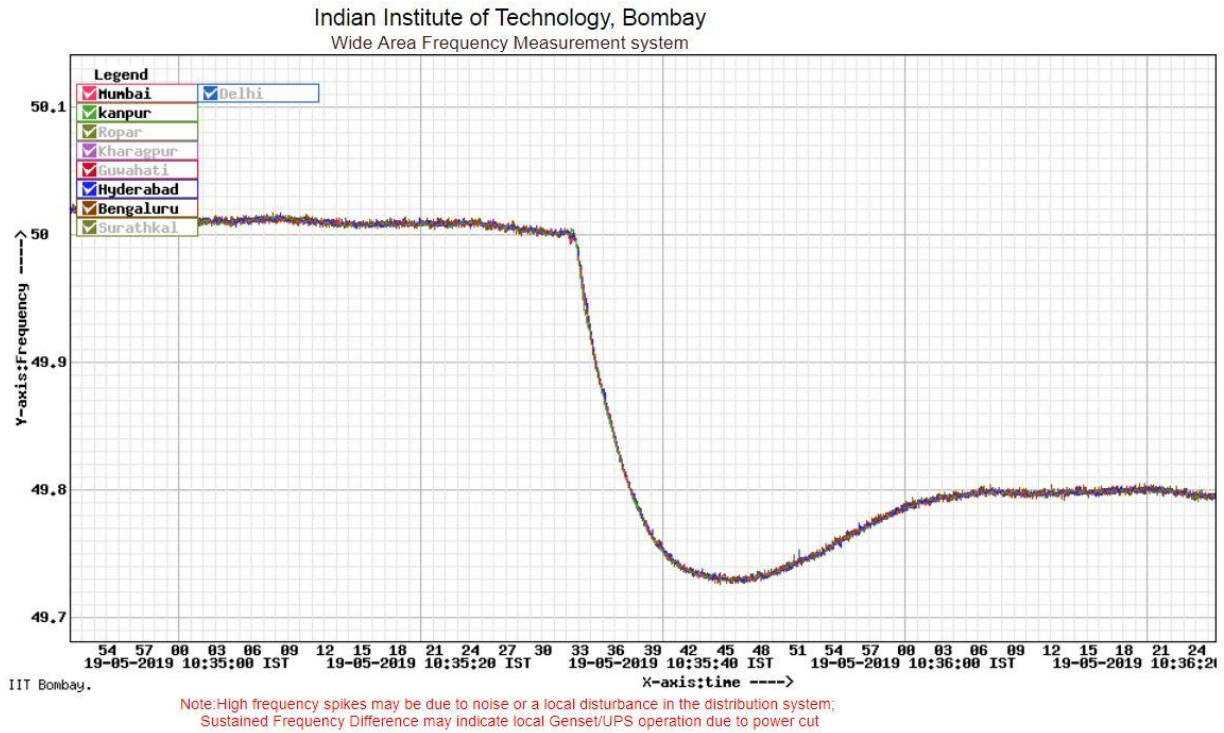


Fig. 3. Frequency response due to the disturbance at Vindhyachal in 2019 (a generation loss of 2700 MW)

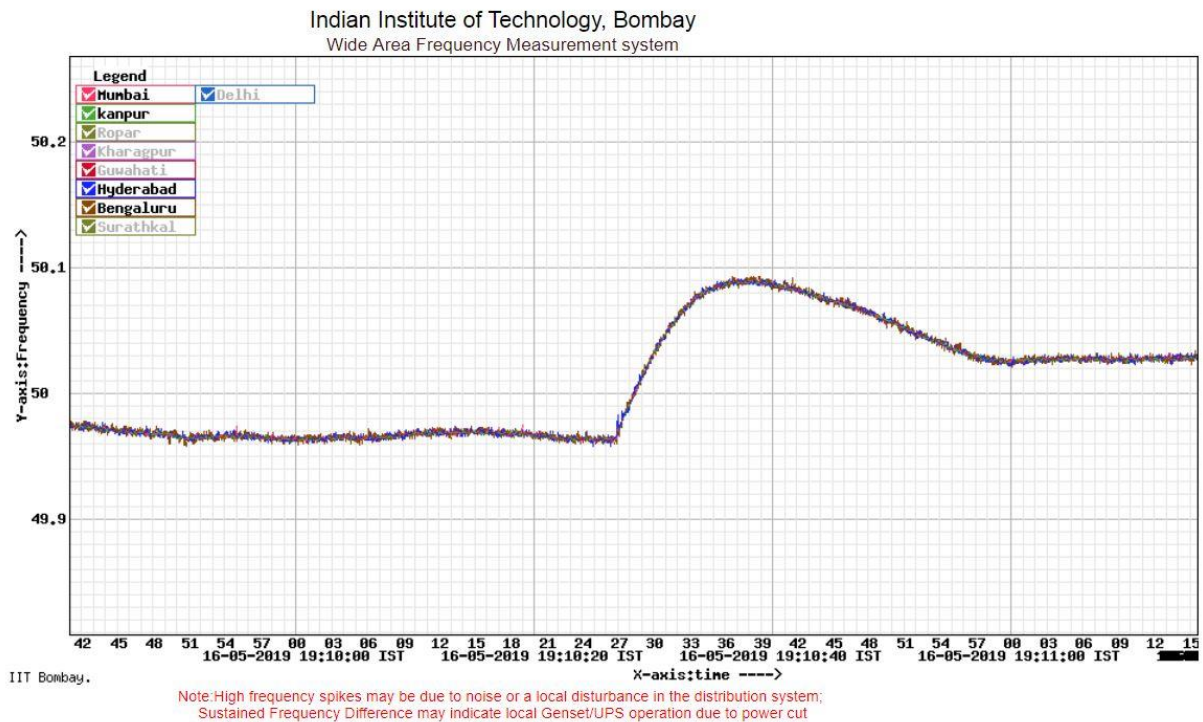


Fig. 4. Frequency response due to the disturbance at Vedanta Sterlite (a load loss of 1300 MW)