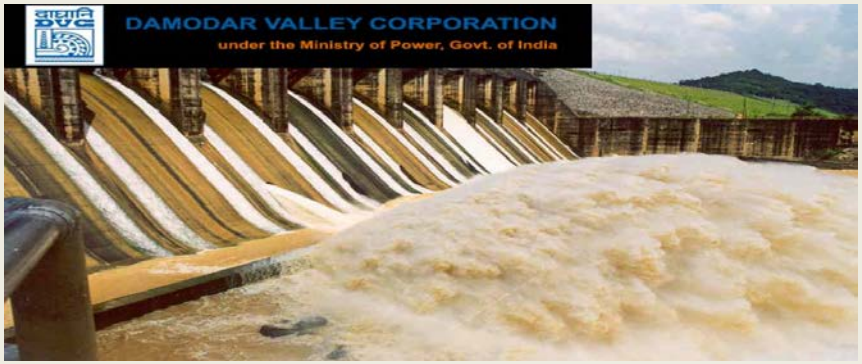
Power System Operation Corporation Ltd.

40th TCC Meeting



ER Grid Performances

- Frequency Profile
- Demand / Energy met
- Generation pattern
- Transnational Exchange
- Eastern-Regional Export Profile
- Overdrawal of Odisha, DVC & WB
- Hydro generation pattern of Odisha & Tala
- Major Transmission element addition and outage status of tr. elements
- Trading in Exchange and Bilateral STOA

Important event list

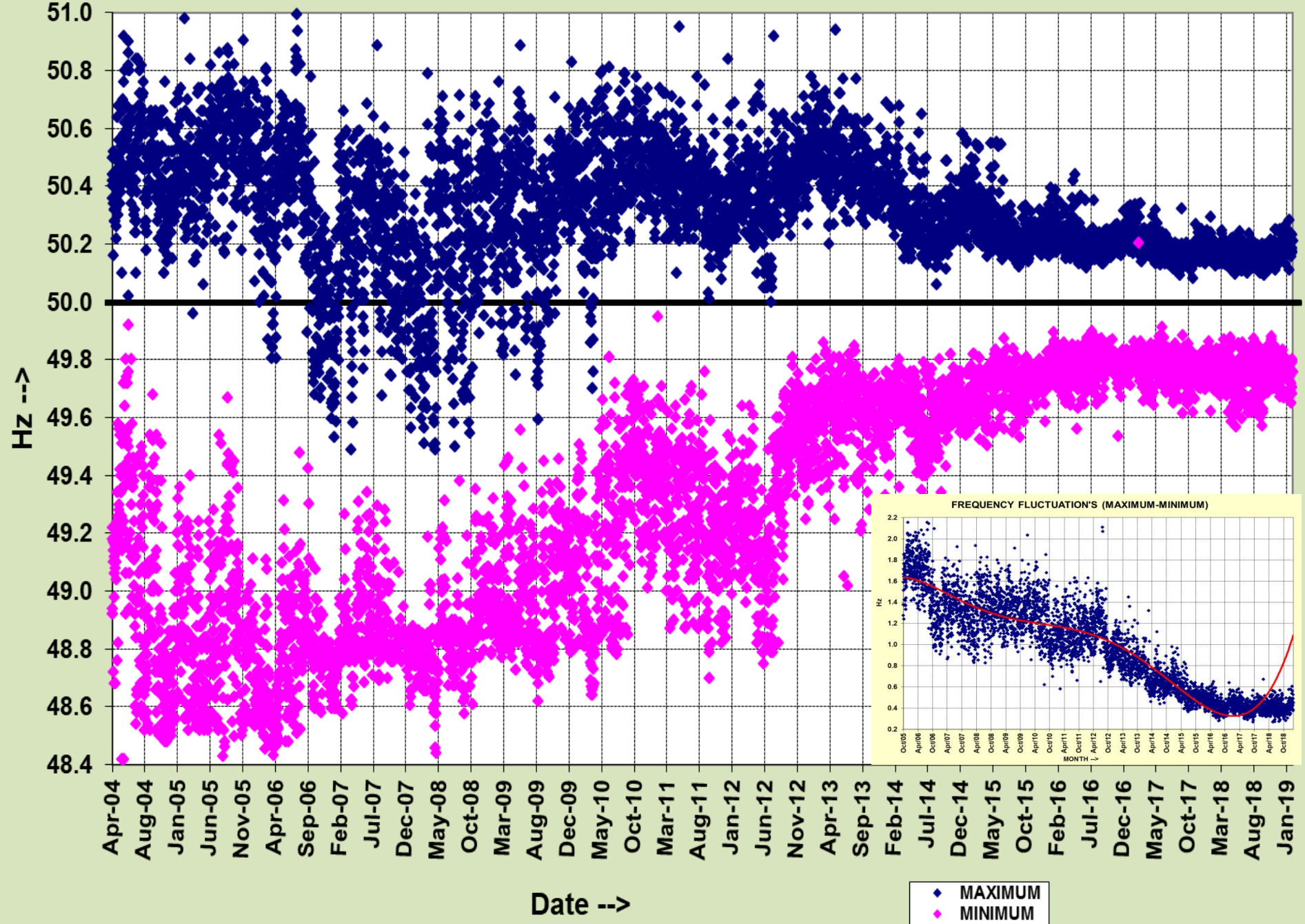
- **NTPP (BRBCL) U#3 of 250 MW** was synchronised for first time at 02:43hrs of 01/01/2019. Unit-3 completed it's 72hrs trial run from 01:30hrs of 07.02.2019 to 03:30hrs of 10/02/ 2019 and declared its DOCO wef 26/02/2019
- **NSTPP (NPGC) U#1 of 660 MW** synchronised for first time at 02:02hrs of 14/01/2019.
- **IB_St-2 (OPGC) U#4 of 660 MW** synchronised for first time at 18:01 hrs of 23-01-2019.
- 400kV Teesta III-Kishanganj-S/C was charged at 17:07hrs of 04/01/2019.
- 400kV Rangpo-Kishanganj-S/C was charged at 16:22hrs of 11/02/2019.
- 400/220kV Rajarhat S/S charged for first time on 28-01-2019 by making LILO of 400kV Jeerat-Subhasgram-S/C. 500MVA ICT-I at Rajarhat & 220kV Jeerat-Newtown-DC was made LILO at Rajarhat on 01/02/2019.
- 400 kV Bus – I bus splitting work completed on 10/01/2019 (Now reconfigured Bus – I and Bus – III coupled through bus sectionaliser wef 20/02/2019).
- 400 kV Bus – II bus splitting work completed on 26/02/2019 (Bus sectionaliser expected to be commissioned by April first week).
- 400 kV Patna – Kisanganj – II restored with (twin moose in one section) on 16/01/2019 at 21:15 Hrs.
- 400 kV Dearabhanga – Kisanganj – II charged on 11/03/2019 and 400 kV Dearabhanga – Kisanganj – I charged on 12/03/2019.

Frequency Profile

Highlights of Frequency Profile (Apr-18 to Feb'19)

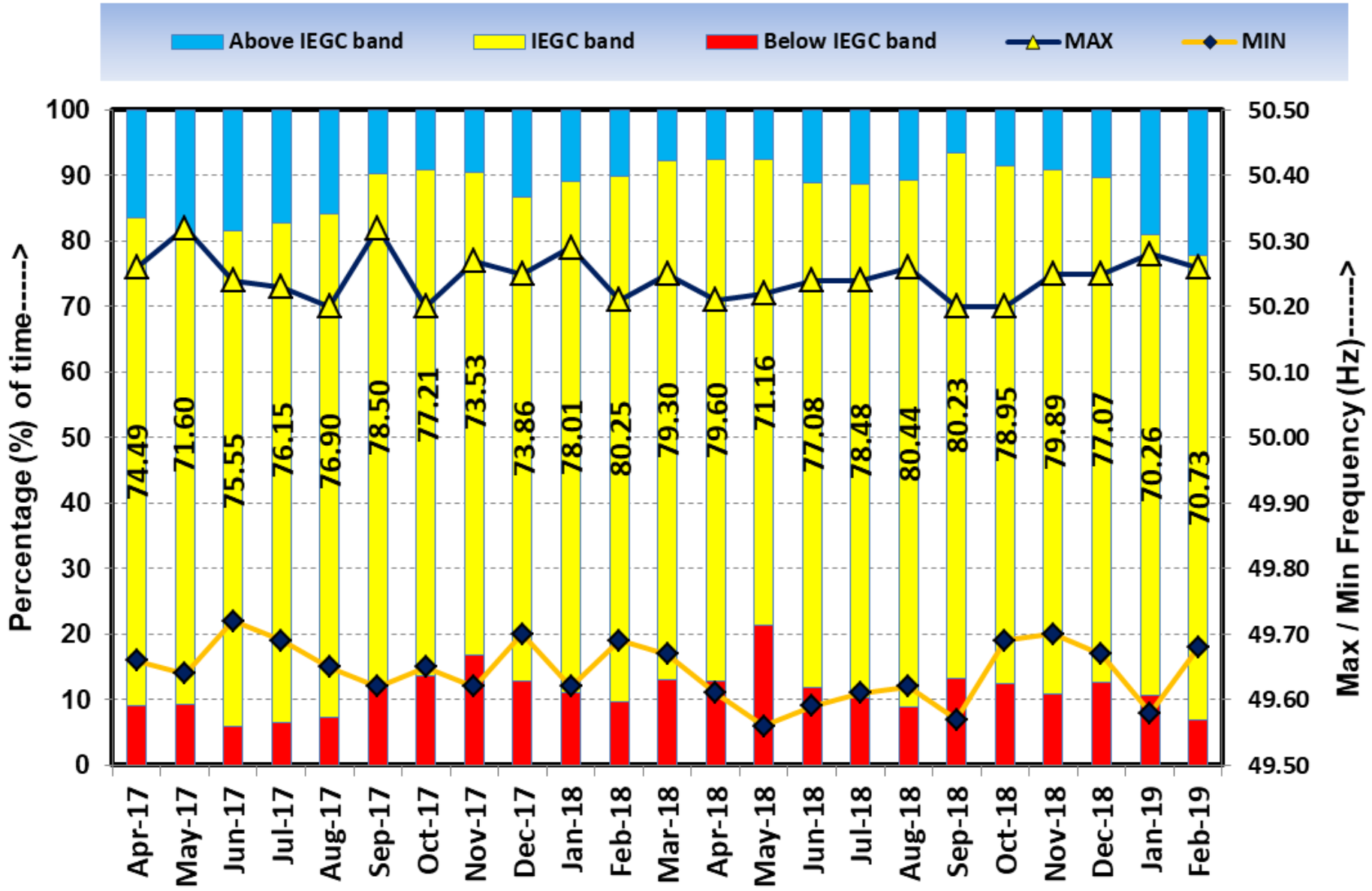
- Maximum Freq - 50.28Hz on 22/01/19
- Minimum Freq - 49.56 Hz on 26/05/18
- Average Freq:- 49.98 Hz
- FVI:- 0.045
- 76.72% of the time within IEGC Band

MAXIMUM AND MINIMUM FREQUENCY PATTERNS



Frequency Profile

Max: 50.28 Hz; Min: 49.56 Hz; Avg: 49.98 Hz; (FY18-19)

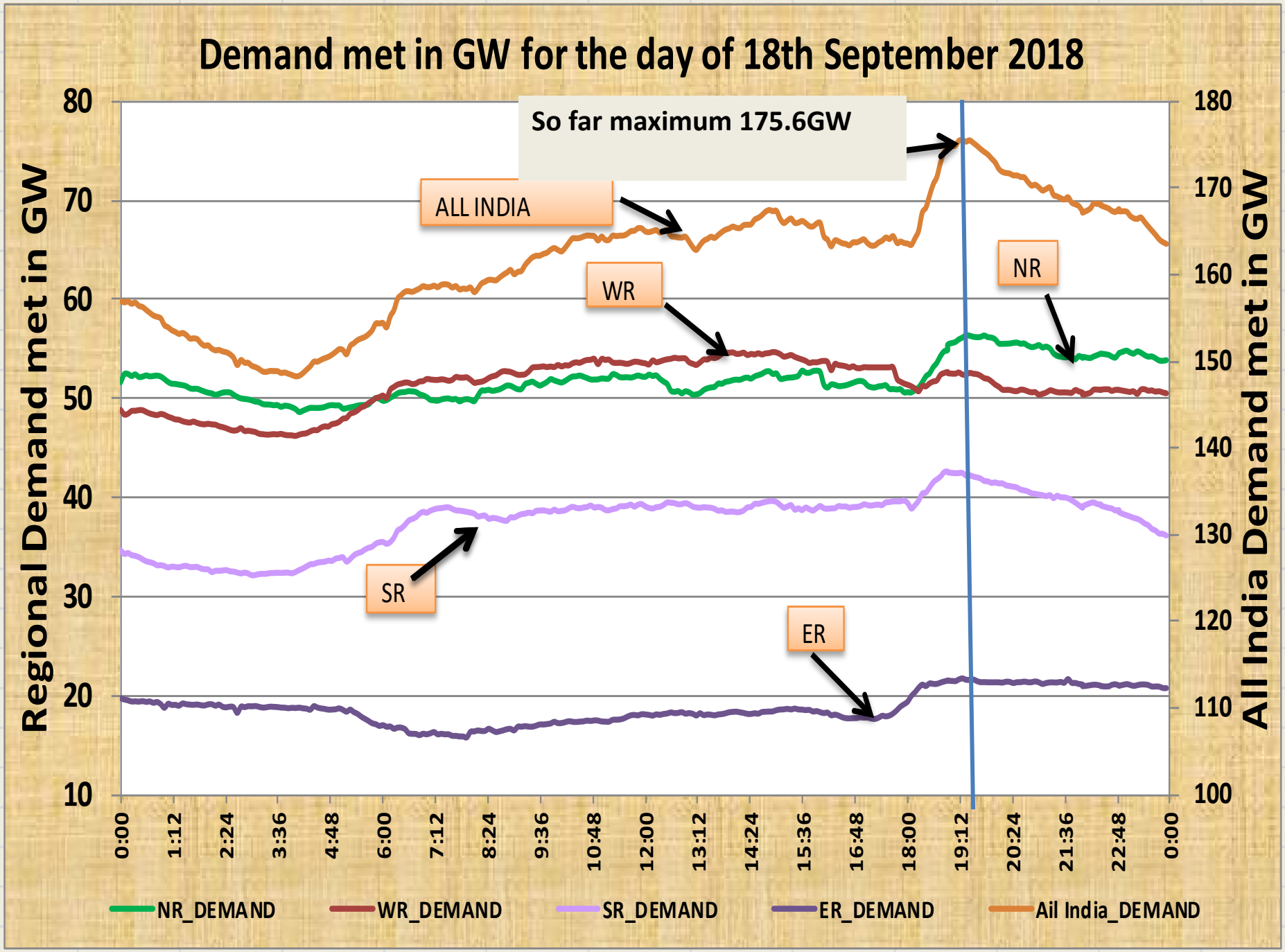


Demand / Energy Consumption Pattern

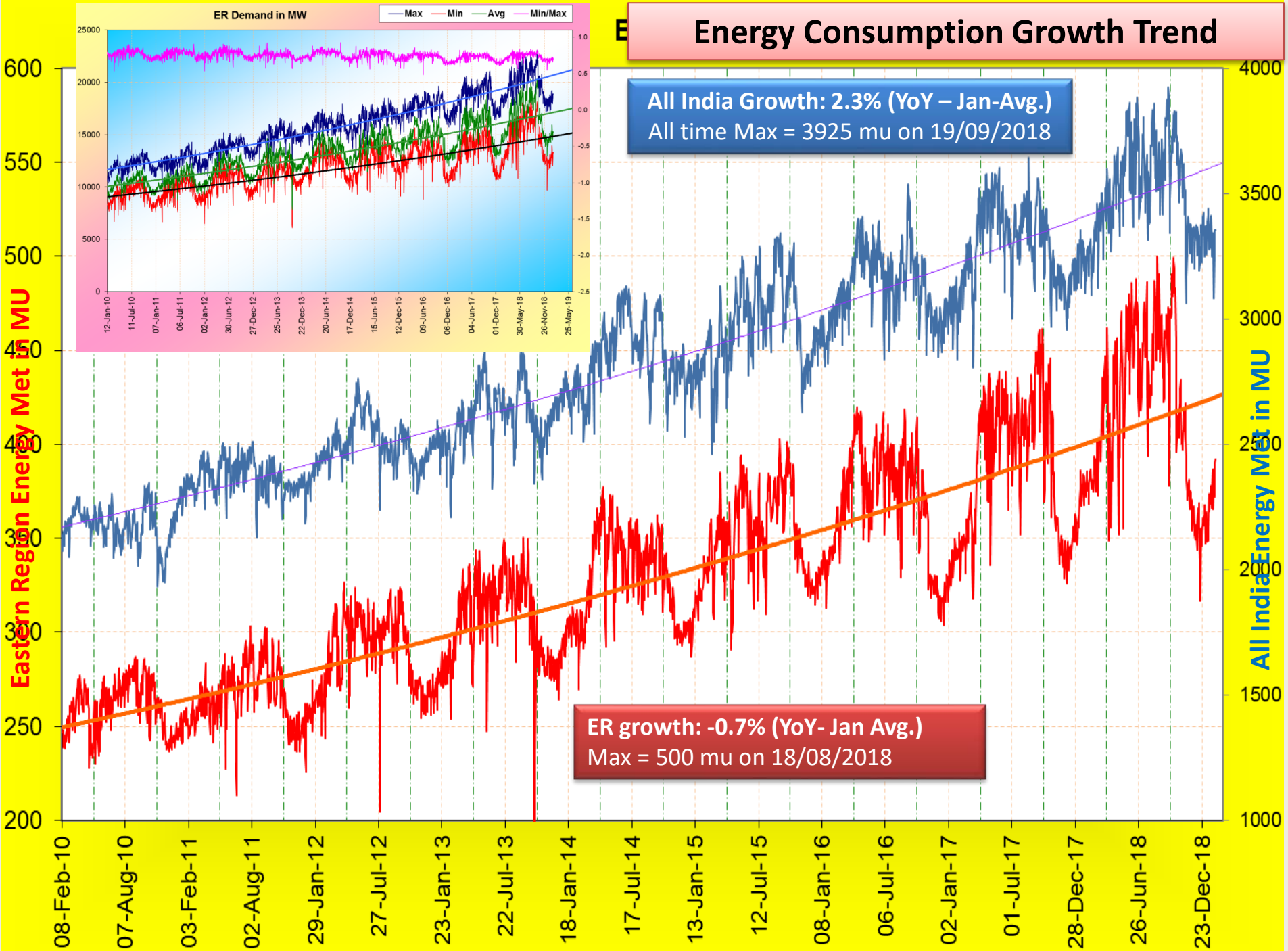
So Far Highest Demand

Region	Energy consumption (MUs)	Date	Demand (MW)	Date
ALL INDIA	3925	19-09-18	175590	18-09-18
NR	1421	10-07-18	64797	25-08-18
WR	1293	16-10-18	58081	16-10-18
SR	1096	07-03-19	48346	04-03-19
ER	499.8	18-08-18	23030	03-10-18
NER	55	19-07-18	2953	07-07-18

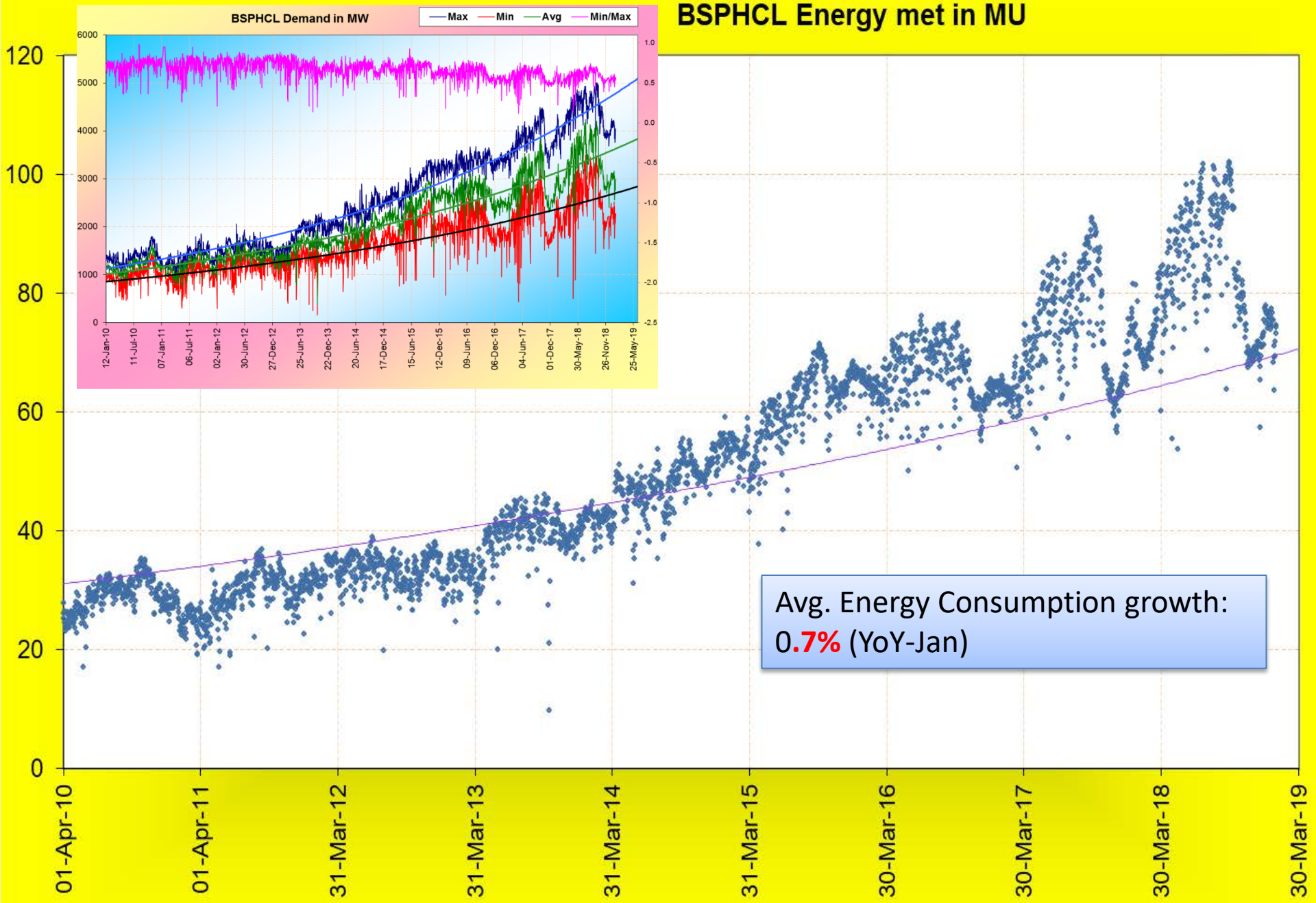
Constituent	Energy consumption (MUs)	Date	Demand (MW)	Date
Bihar	104.0	02-Oct-18	5011	12-July-18
DVC	75.8	12-July-18	3536	12-July-18
Jharkhand	27.8	19-May-18	1319	19-May-18
Odisha	123.5	02-Oct-18	5558	23-Aug-18
West Bengal	192.6	05-Oct-18	8896	18-June-18
Sikkim	2.1	07-Dec-17	117	28-Oct-16
ER	499.8	18-Aug-18	23030	03-Oct-18


Demand met in GW for the day of 18th September 2018
So far maximum 175.6GW
ALL INDIA
WR
NR
SR
ER
Regional Demand met in GW
All India Demand met in GW
80
70
60
50
40
30
20
10
180
170
160
150
140
130
120
110
100
0:00
1:12
2:24
3:36
4:48
6:00
7:12
8:24
9:36
10:48
12:00
13:12
14:24
15:36
16:48
18:00
19:12
20:24
21:36
22:48
0:00
NR_DEMAND
WR_DEMAND
SR_DEMAND
ER_DEMAND
Ail India_DEMAND

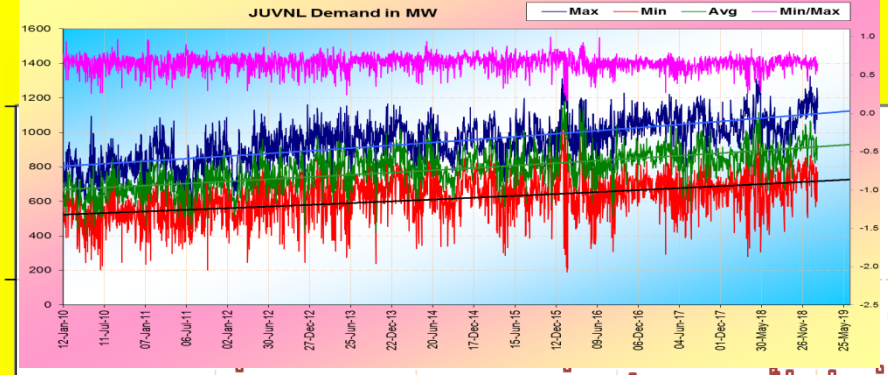
Energy Consumption Growth Trend



BSPHCL Energy met in MU



JUVNL Energy met in MU

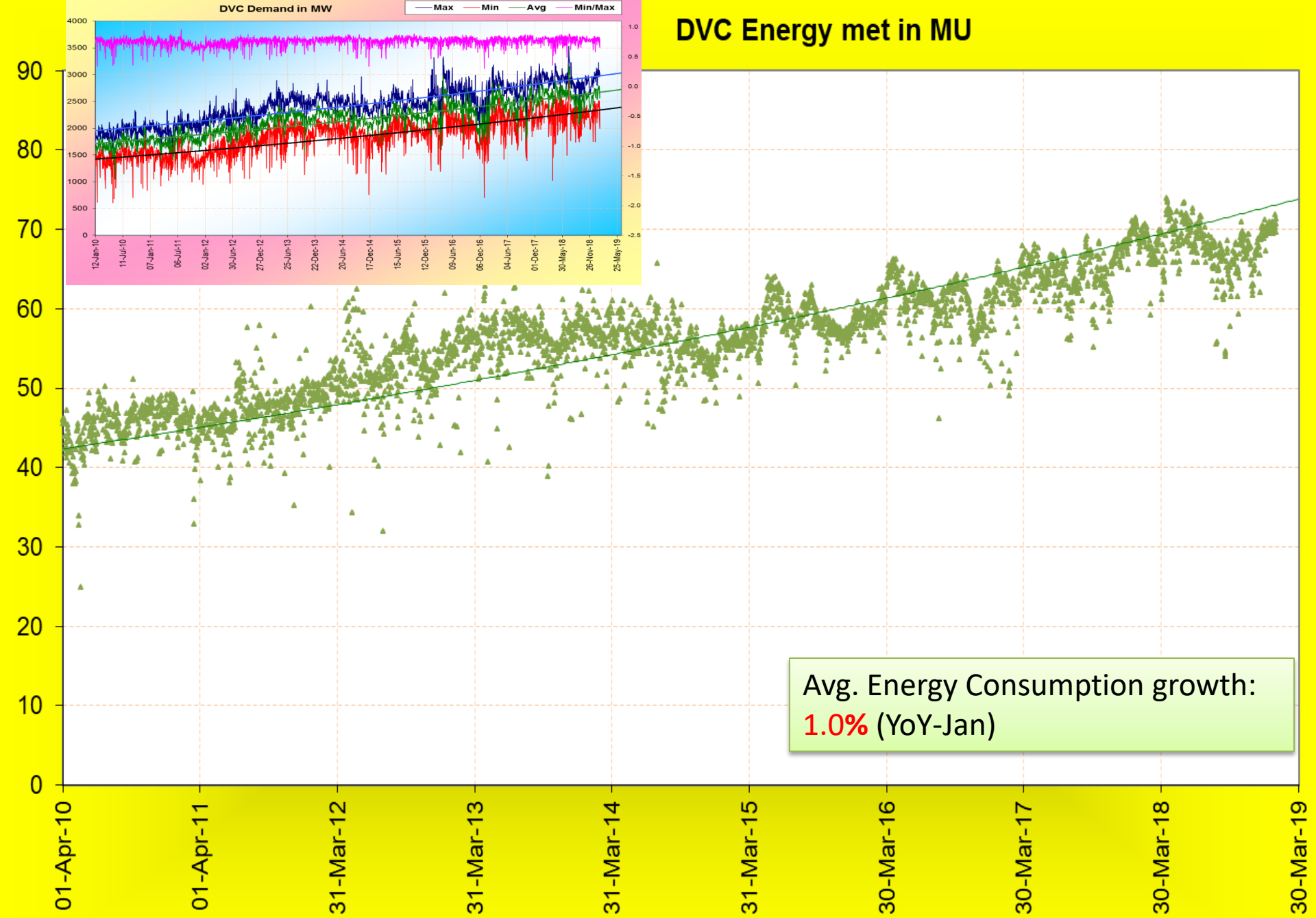


30
25
20
15
10
5
0

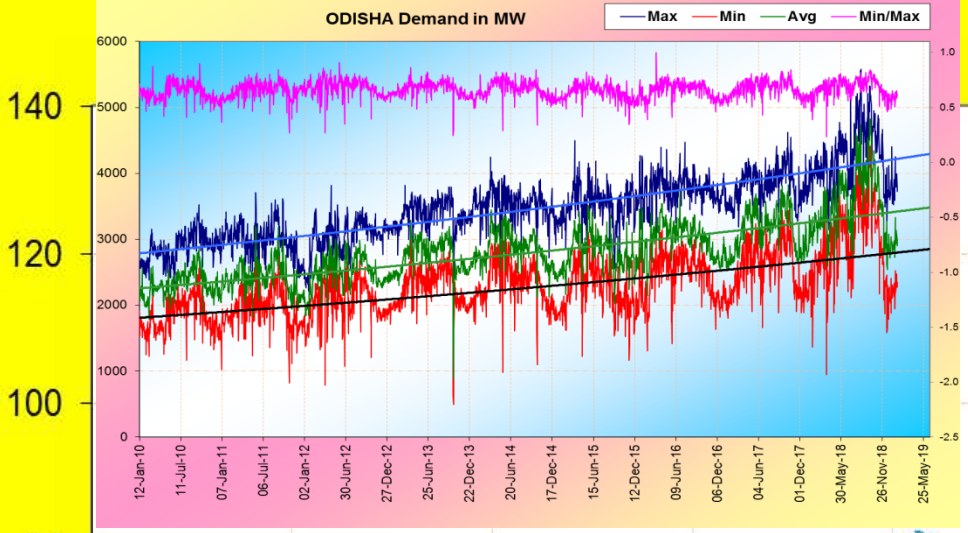
01-Apr-10
01-Apr-11
31-Mar-12
31-Mar-13
31-Mar-14
31-Mar-15
30-Mar-16
30-Mar-17
30-Mar-18
30-Mar-19

Avg. Energy Consumption growth:
(-)**0.7%** (YoY-Jan)

DVC Energy met in MU



Odisha Energy met in MU

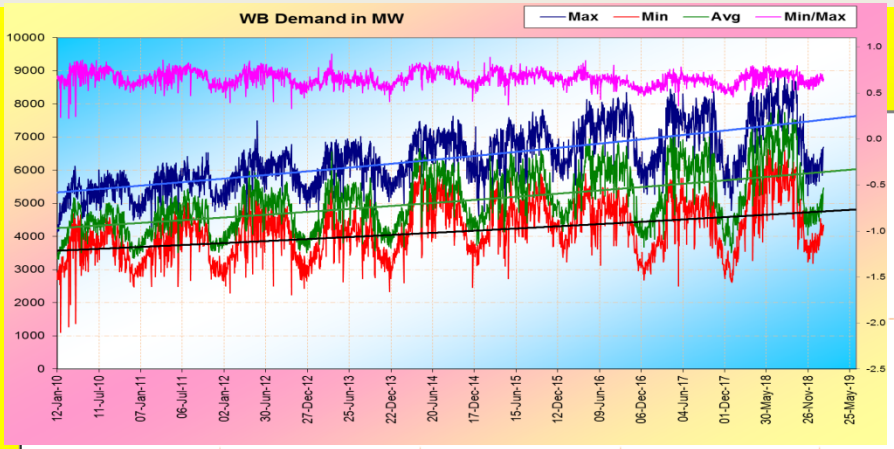


140
120
100
80
60
40
20
0

01-Apr-10
01-Apr-11
31-Mar-12
31-Mar-13
31-Mar-14
31-Mar-15
30-Mar-16
30-Mar-17
30-Mar-18
30-Mar-19

Avg. Energy Consumption growth:
(-)0.**3%** (YoY-Jan)

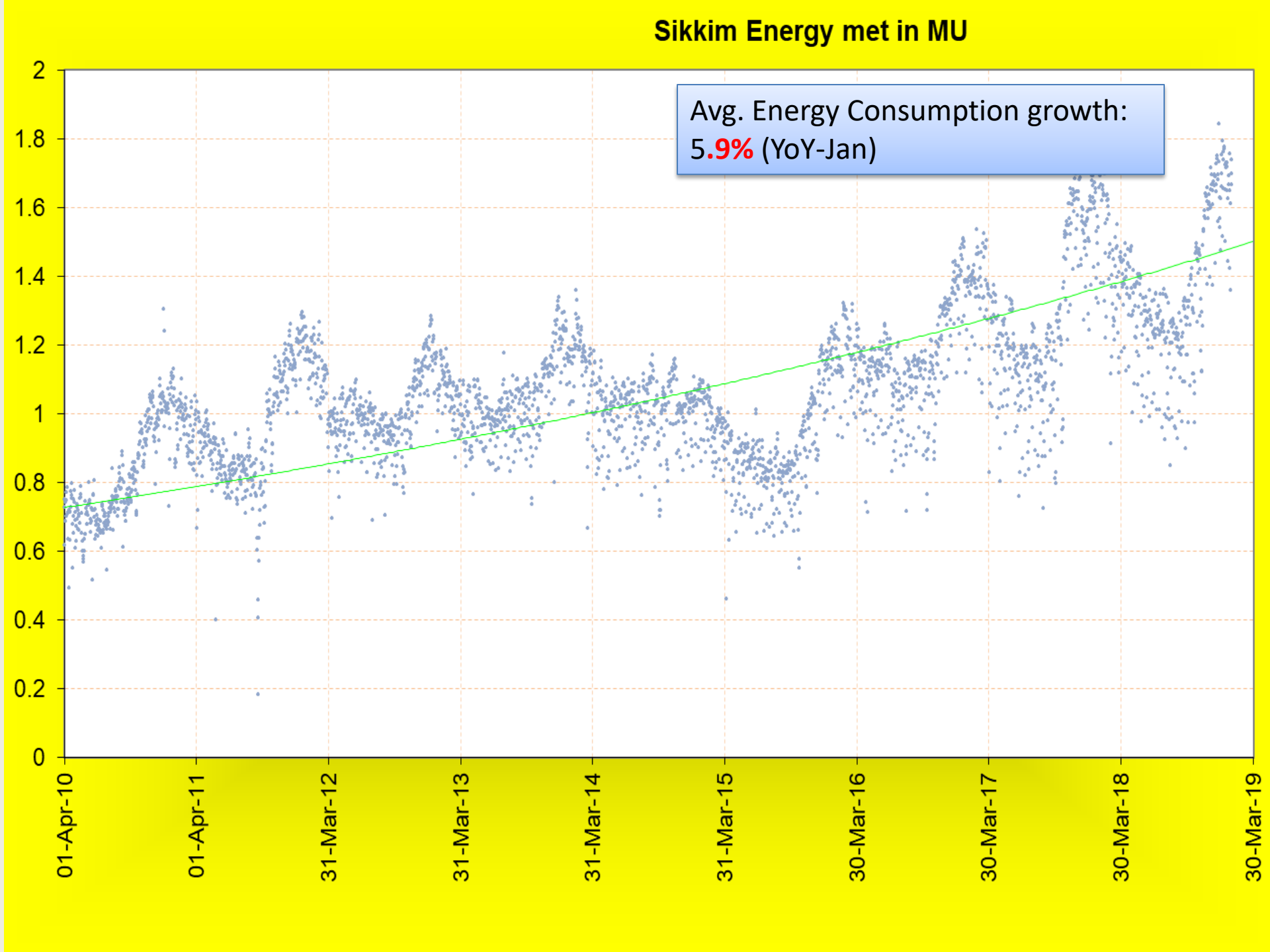
WB Energy met in MU



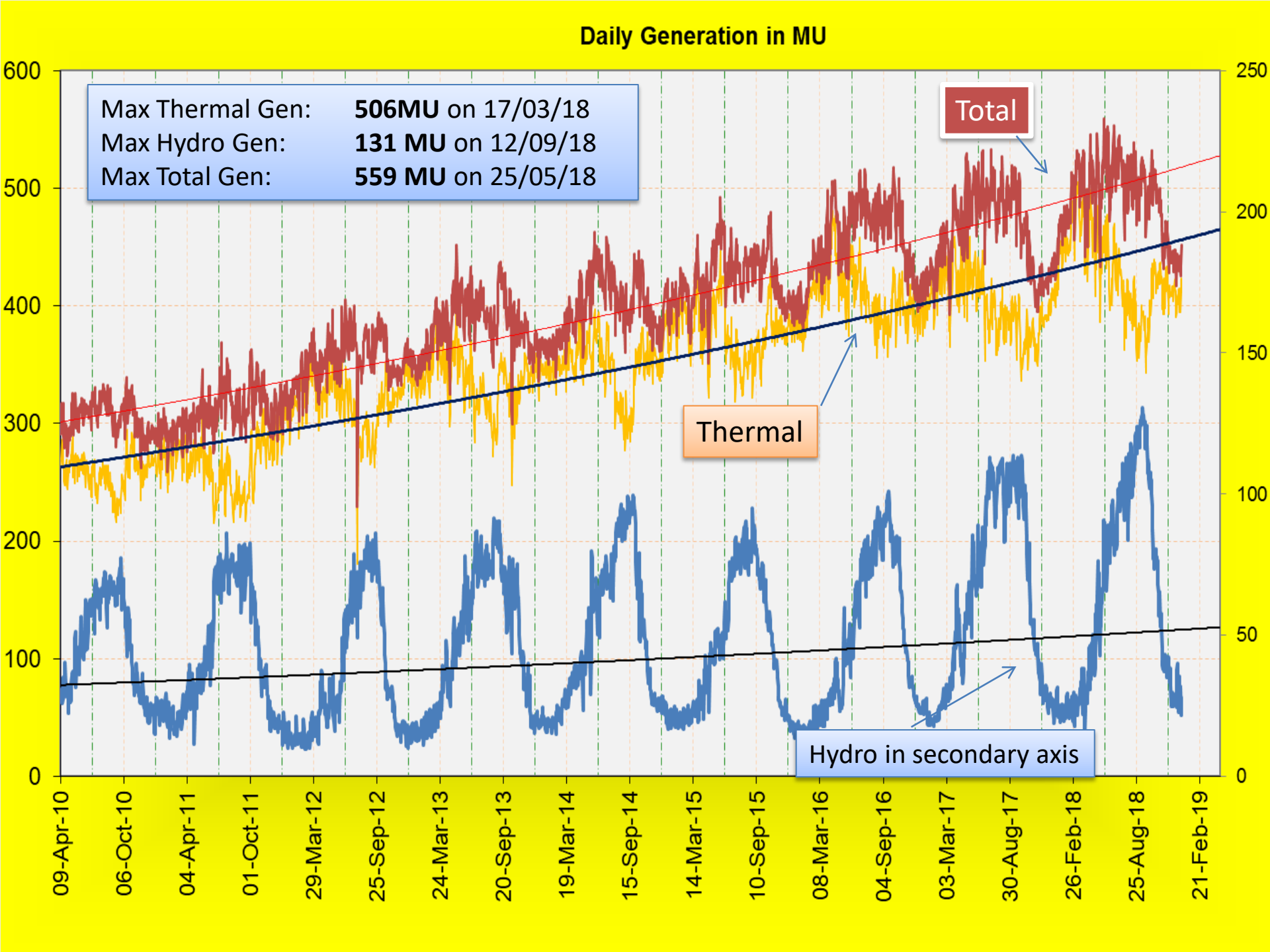
Avg. Energy Consumption growth:
2.2% (YoY-Jan)

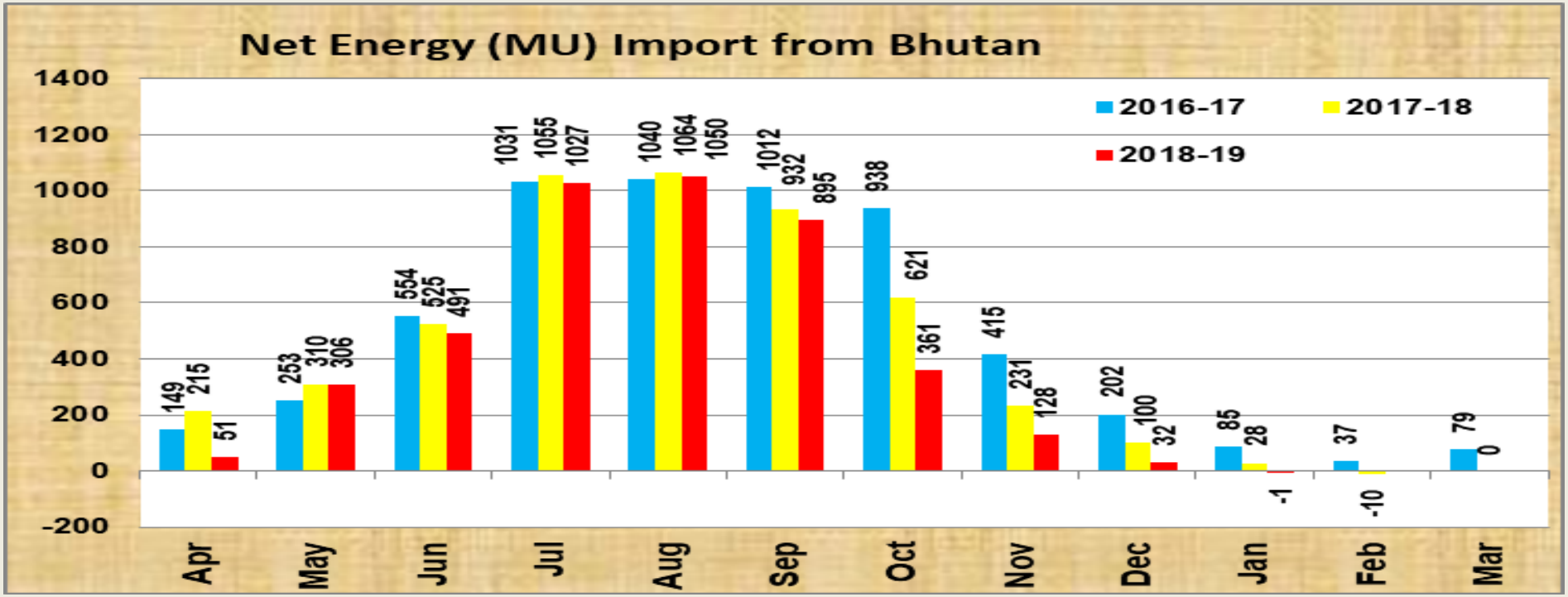
250
200
150
100
50
0

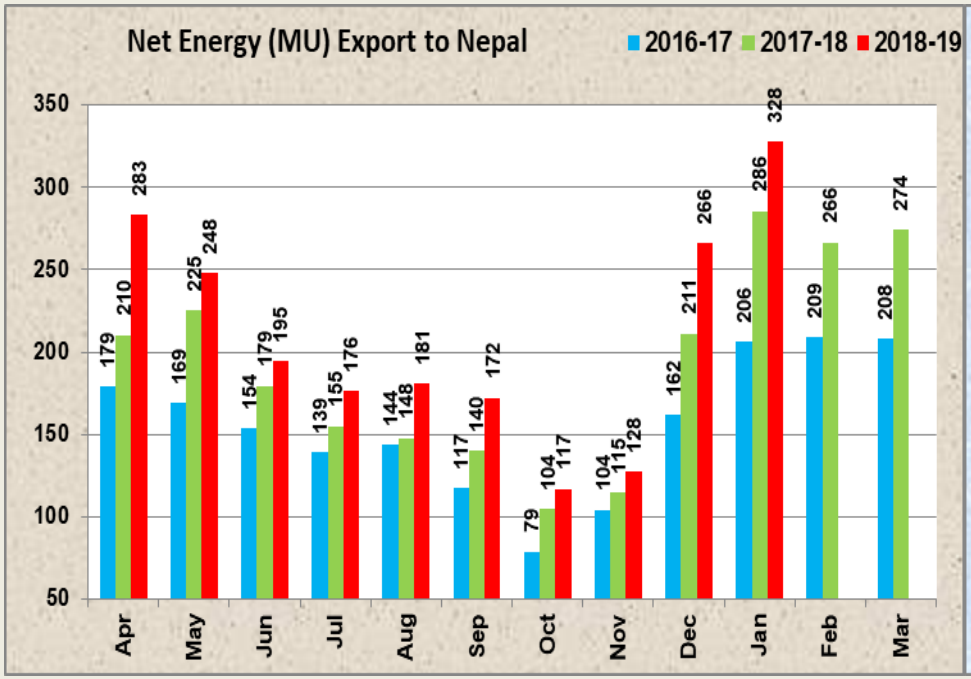
01-Apr-10
01-Apr-11
31-Mar-12
31-Mar-13
31-Mar-14
31-Mar-15
30-Mar-16
30-Mar-17
30-Mar-18
30-Mar-19

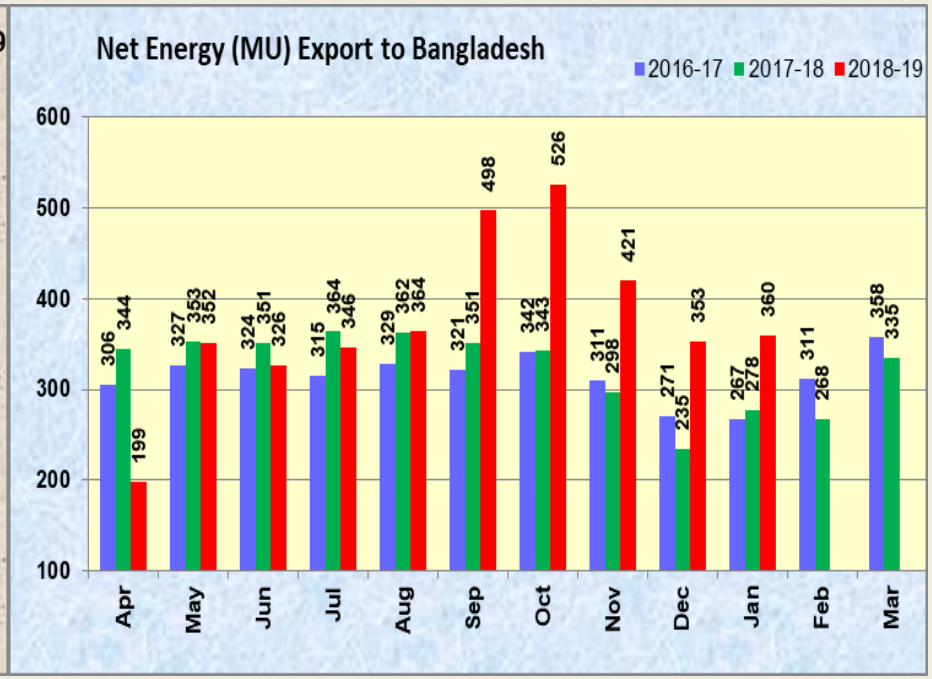

Sikkim Energy met in MU
Avg. Energy Consumption growth:
5.9% (YoY-Jan)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
01-Apr-10
01-Apr-11
31-Mar-12
31-Mar-13
31-Mar-14
31-Mar-15
30-Mar-16
30-Mar-17
30-Mar-18
30-Mar-19

Generation pattern

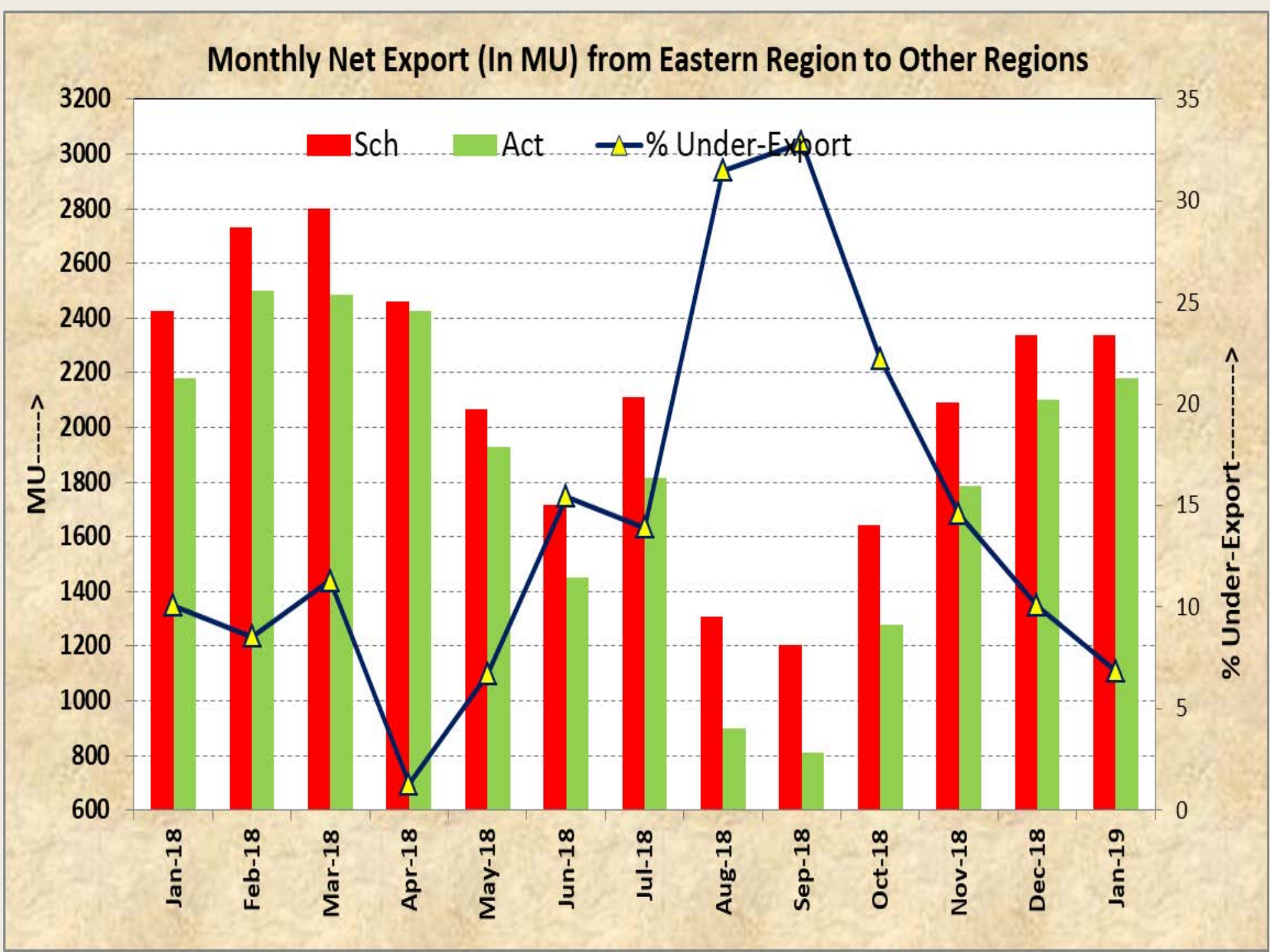

Daily Generation in MU
Max Thermal Gen: 506MU on 17/03/18
Max Hydro Gen: 131 MU on 12/09/18
Max Total Gen: 559 MU on 25/05/18
Total
Thermal
Hydro in secondary axis
600
500
400
300
200
100
0
250
200
150
100
50
0
09-Apr-10
06-Oct-10
04-Apr-11
01-Oct-11
29-Mar-12
25-Sep-12
24-Mar-13
20-Sep-13
19-Mar-14
15-Sep-14
14-Mar-15
10-Sep-15
08-Mar-16
04-Sep-16
03-Mar-17
30-Aug-17
26-Feb-18
25-Aug-18
21-Feb-19

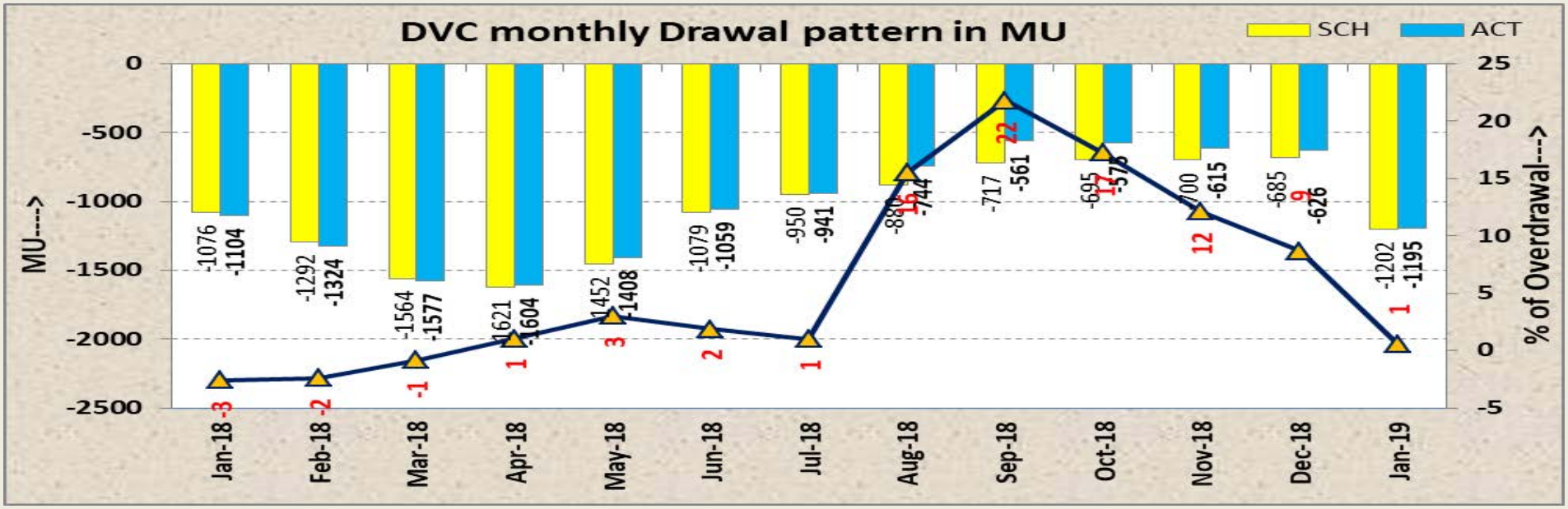

Net Energy (MU) Import from Bhutan
2016-17
2017-18
2018-19
1400
1200
1000
800
600
400
200
0
-200
149 215 51
253 310 306
554 525 491
1031 1055 1027
1040 1064 1050
1012 932 895
938 621 361
415 231 128
202 100 32
85 28 -1
37 -10
79 0
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar

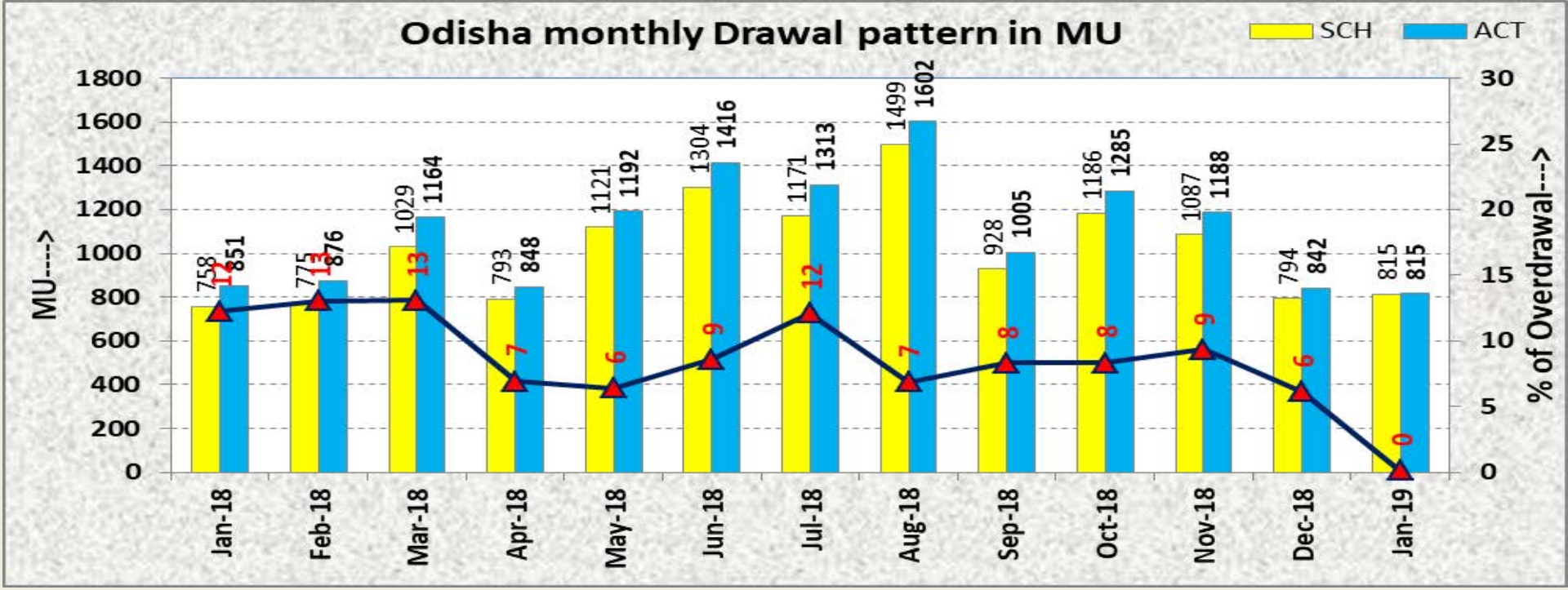

Net Energy (MU) Export to Nepal
2016-17
2017-18
2018-19
350
300
250
200
150
100
50
179 210 283
169 225 248
154 179 195
139 155 176
144 148 181
117 140 172
79 104 117
104 115 128
162 211 266
206 286 328
209 266
208 274
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar

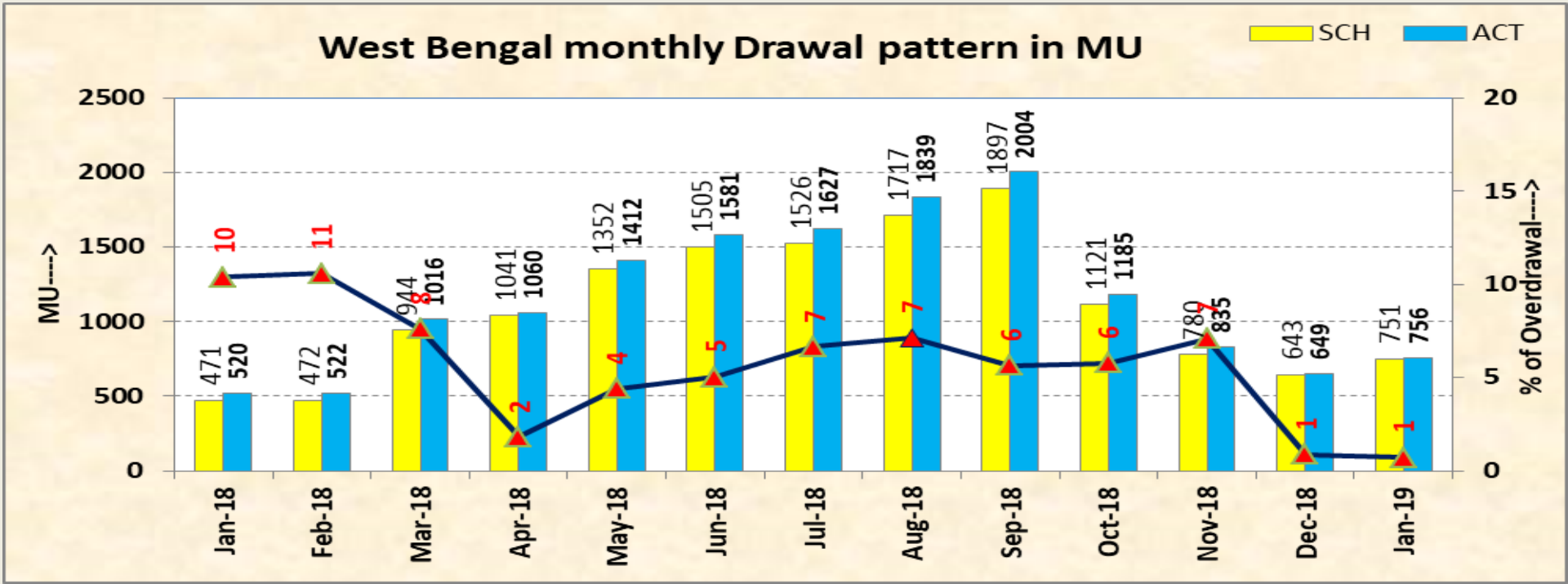

Net Energy (MU) Export to Bangladesh
2016-17
2017-18
2018-19
600
500
400
300
200
100
306 344 199
327 353 352
324 351 326
315 364 346
329 362 364
321 351 498
342 343 526
311 298 421
271 235 353
267 278 360
311 268
358 335
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar

Overdrawal of ER

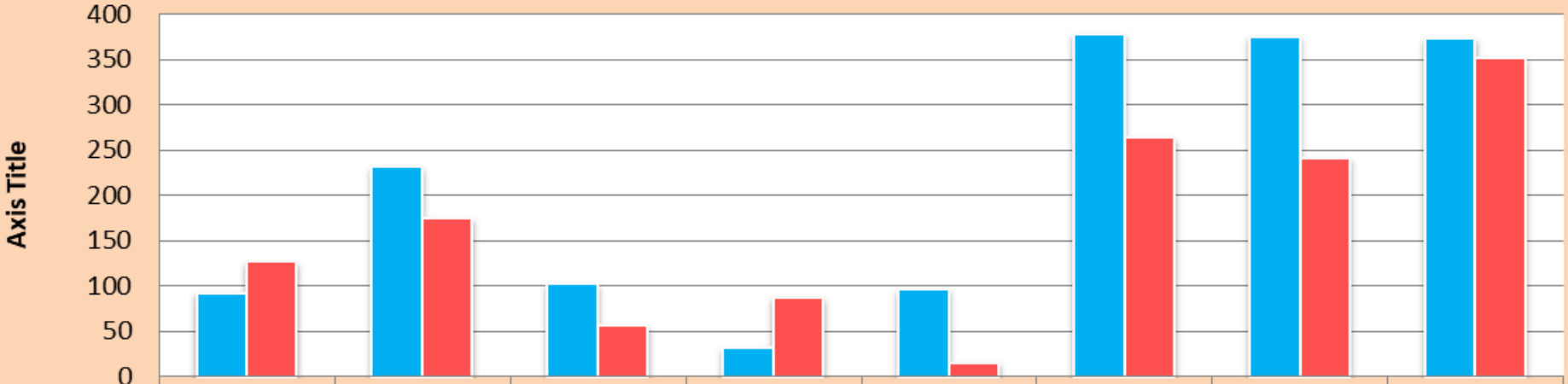

Monthly Net Export (In MU) from Eastern Region to Other Regions
Sch
Act
% Under-Export
MU----->
% Under-Export-------->
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
35
30
25
20
15
10
5
0
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19


DVC monthly Drawal pattern in MU
SCH
ACT
MU---->
% of Overdrawal-->
0
-500
-1000
-1500
-2000
-2500
25
20
15
10
5
0
-5
-1076
-1104
-1292
-1324
-1564
-1577
-1621
-1604
-1452
-1408
-1079
-1059
-950
-941
-717
-561
-615
-685
-626
-1202
-1195
-3
-2
-1
1
3
2
1
22
12
9
1
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19


Odisha monthly Drawal pattern in MU
SCH
ACT
MU---->
% of Overdrawal--->
1800
1600
1400
1200
1000
800
600
400
200
0
30
25
20
15
10
5
0
758 851 12
775 876 13
1029 1164 13
793 848 7
1121 1192 6
1304 1416 9
1171 1313 12
1499 1602 7
928 1005 8
1186 1285 8
1087 1188 9
794 842 6
815 815 0
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19

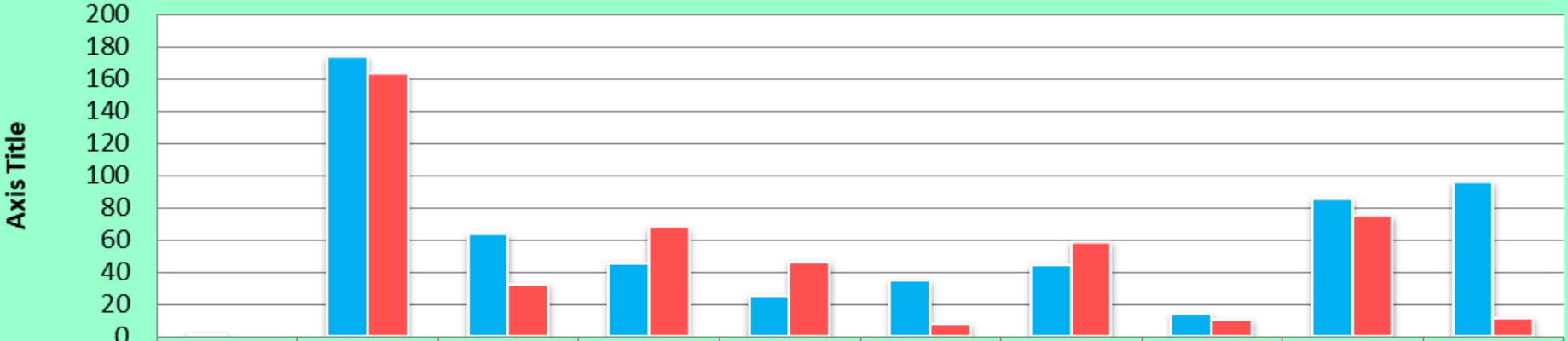

West Bengal monthly Drawal pattern in MU
SCH
ACT
MU---->
% of Overdrawal--->
2500
2000
1500
1000
500
0
20
15
10
5
0
471 520 10
472 522 11
944 1016 8
1041 1060 2
1352 1412 4
1505 1581 5
1526 1627 7
1717 1839 7
1897 2004 6
1121 1185 6
780 835 7
643 649 1
751 756 1
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19

No. of 0 crossing violations of State entity during Jan & Feb 19



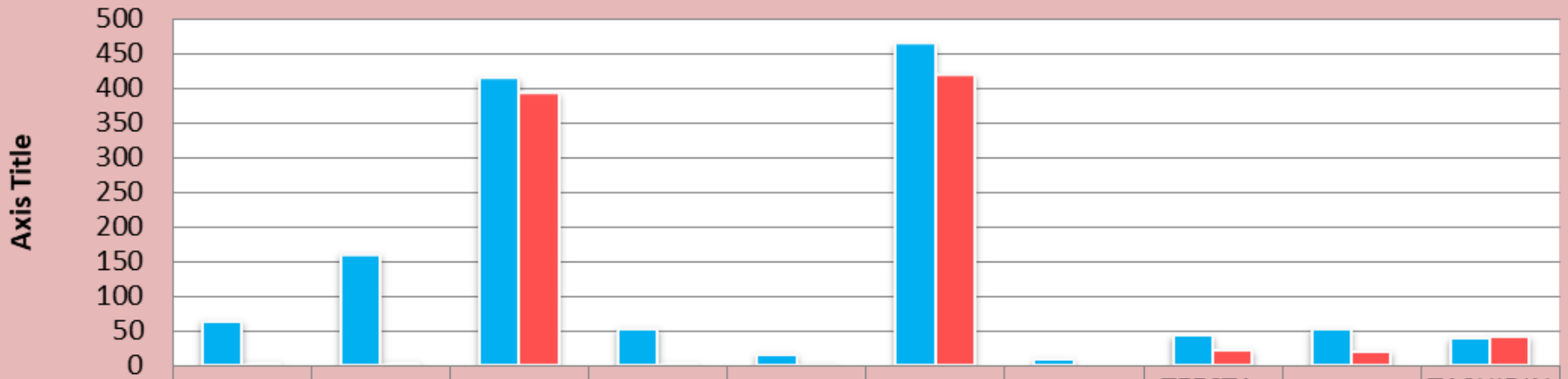
	BSEB	JSEB	DVC	GRIDCO	WBSETCL	SIKKIM	NEPAL	Bangladesh
January	93	232	103	32	97	379	376	374
February	127	175	57	88	16	264	242	353

No. of 0 crossing violations of ISGS during Jan & Feb 19



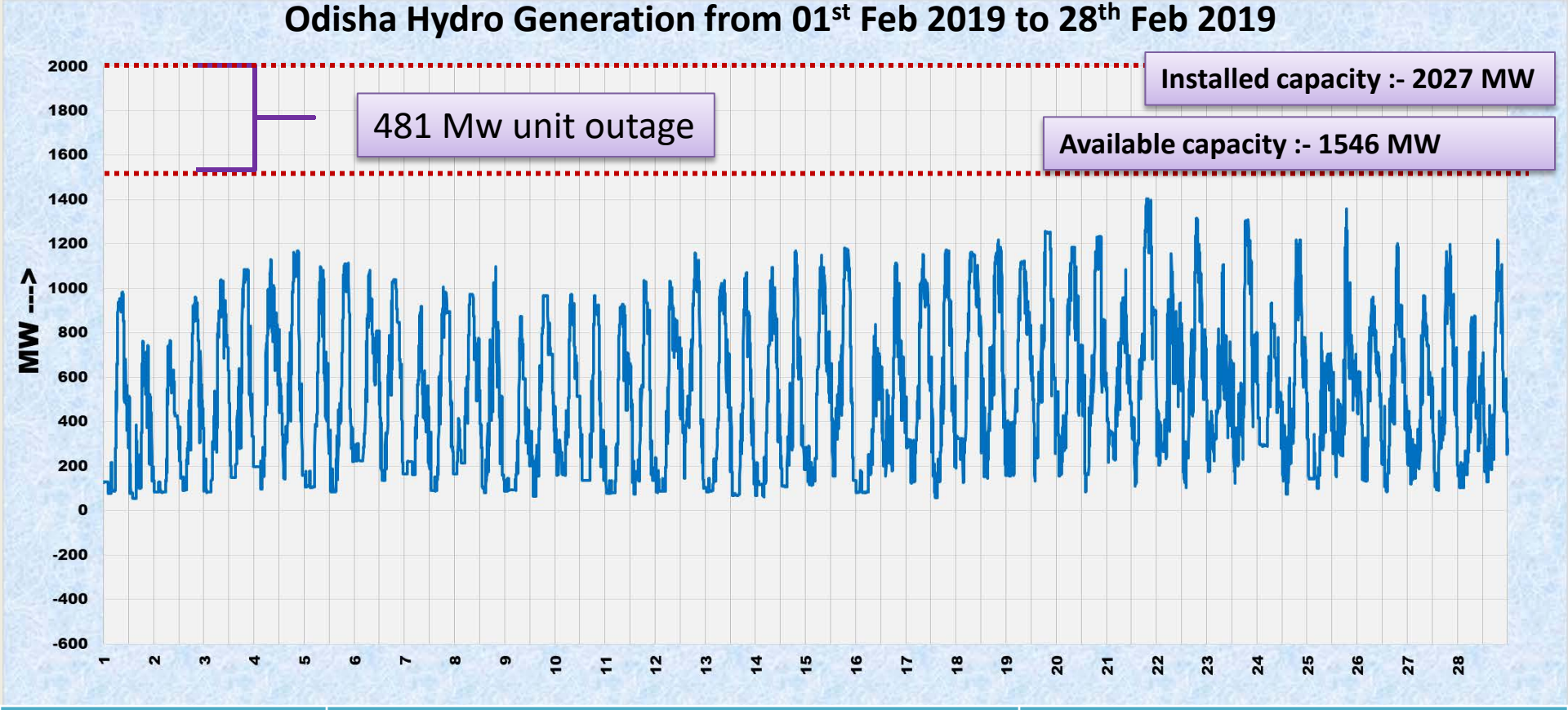
	TEESTA	RANGIT	Farakka-III	Farakka I&II	Kahalgaon II	Kahalgaon I	Talcher	BARH	BRBCL	MTPS
January	2	174	64	46	26	35	45	14	86	96
February	0	163	33	68	47	8	59	11	75	12

No. of 0 crossing violations of IPP during Jan & Feb 19



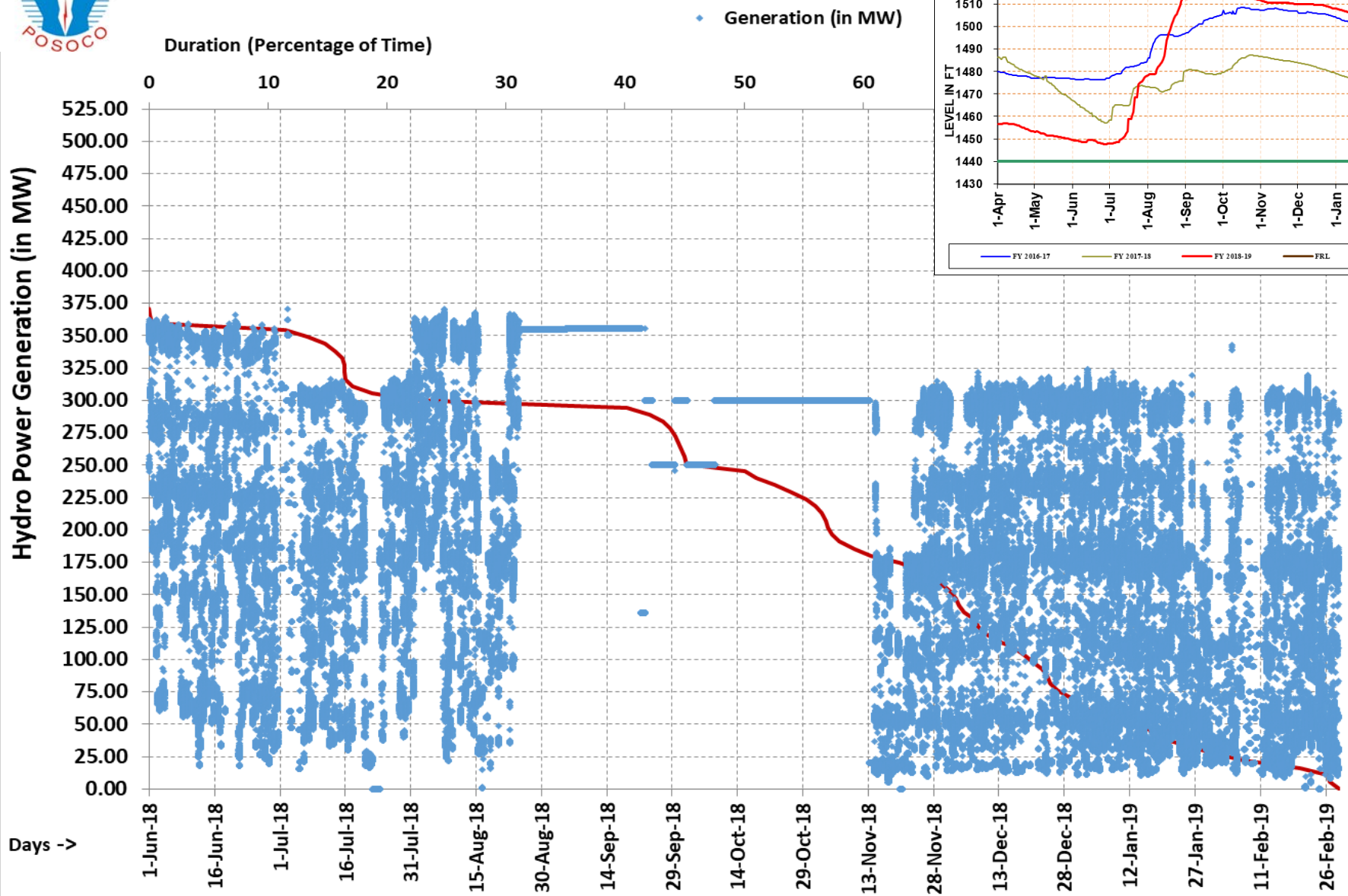
	MPL	APNRL	CHZN	JITPL	GMR	Dagachu	JLHEP	TEESTA-III	DICKCHU	TASHIDING
January	65	161	415	54	17	465	10	44	53	40
February	5	5	394	4	1	420	0	23	21	42

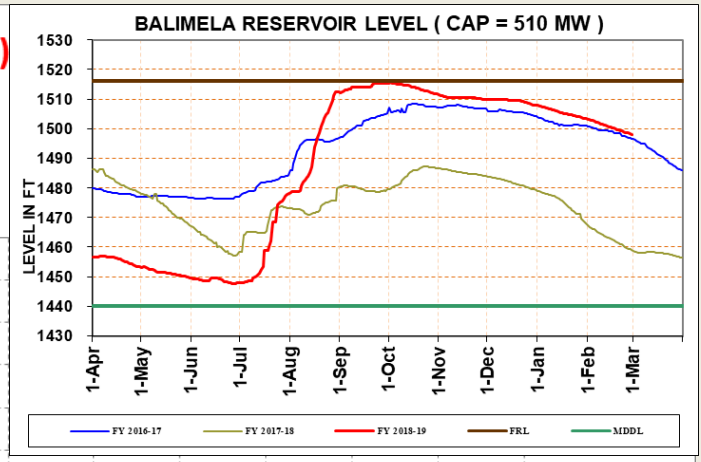
Hydro Generation Pattern of Odisha



	Long Outage	Forced Outage
Burla	75 : U-5(37.5 mw), U-6(37.5 mw)	81.5: U-1(49.5 mw), U-4(32 mw)
Chipilima	24 :U-3 (24mW)	
Balimela	120 : U-1(60 mw) U-2(60Mw)	
Rengali		50: U-2(50 Mw), U-4(50 Mw)
Up Kolab		80 : U-4(80 Mw)
	219	261.5

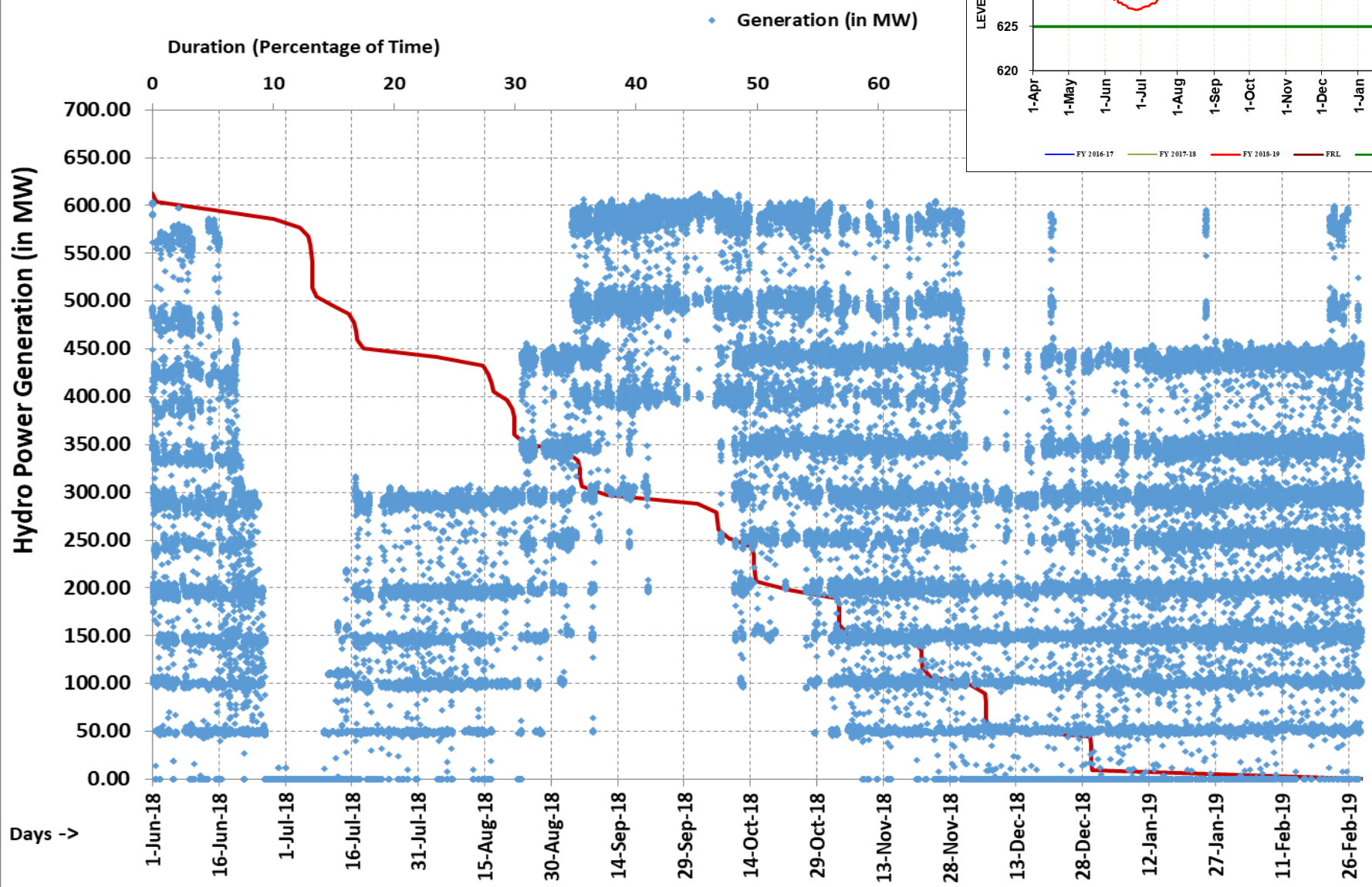
BALIMELA GEN(60*6+75*2=510 MW)

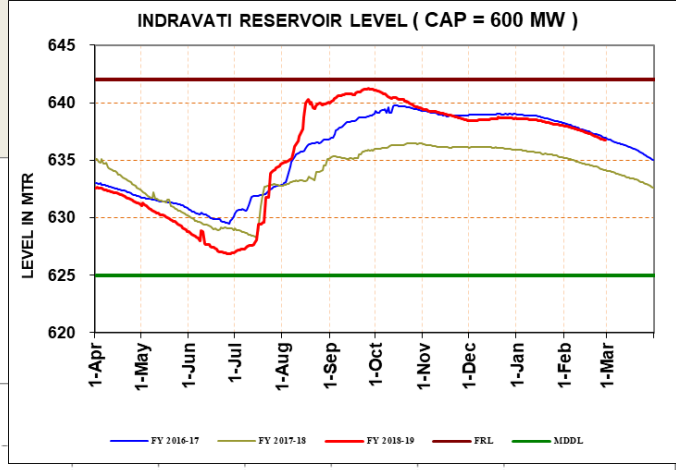


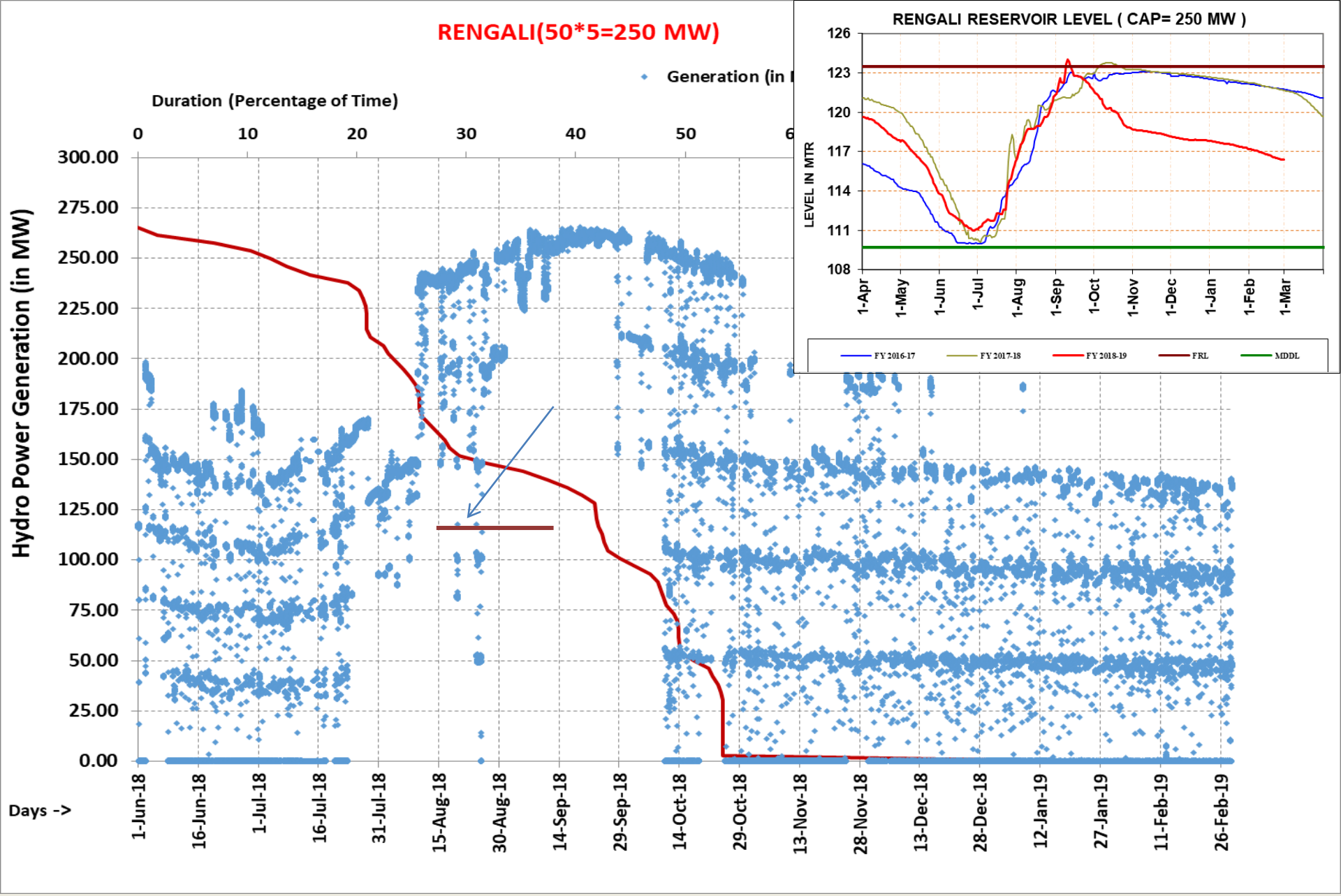


Effective Installed capacity over the period was 390 mw less due to **long outage of U-1(60 Mw), U-2(60 Mw) for R&M Work**

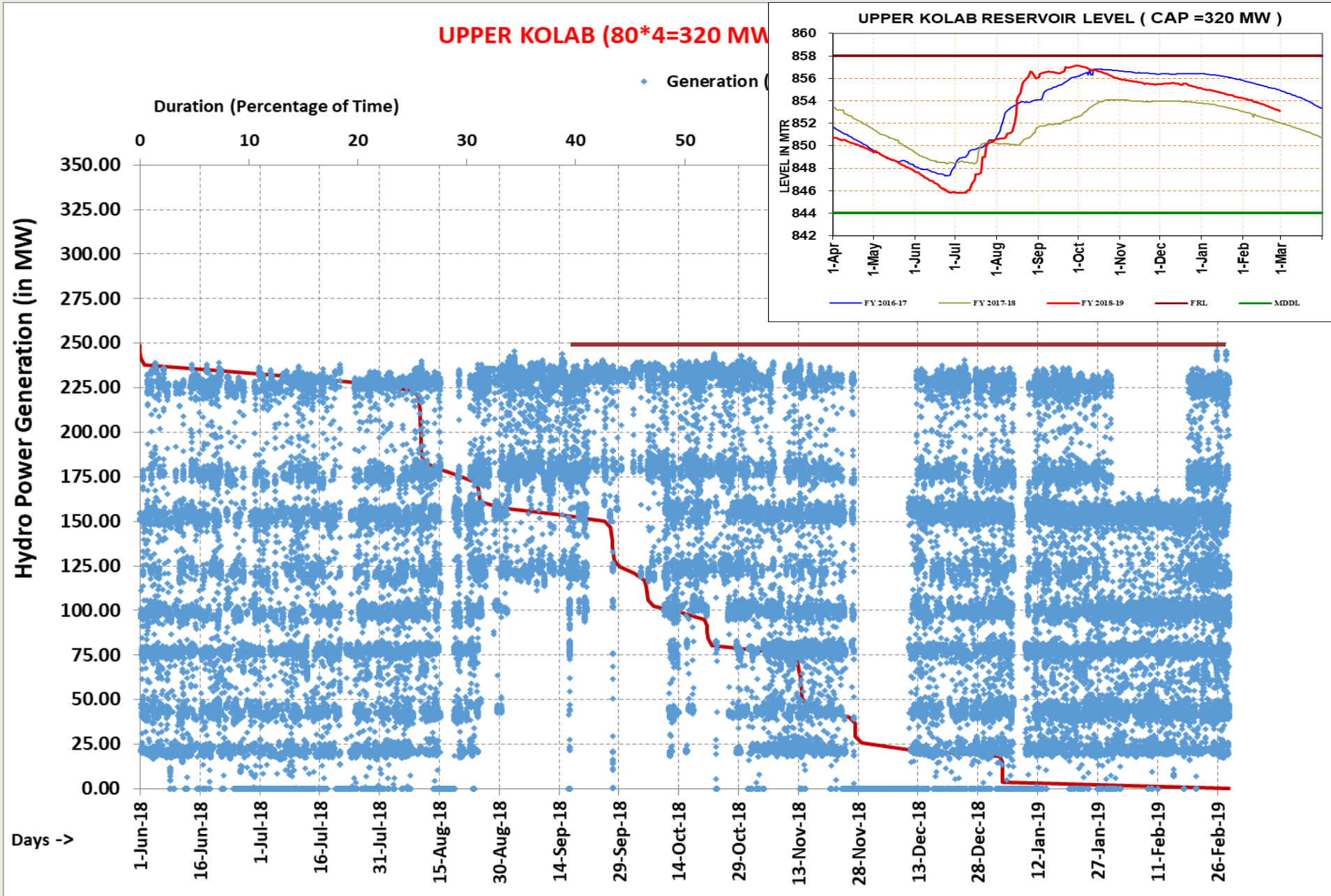
INDRAVATI GEN (150*4=600 MW)







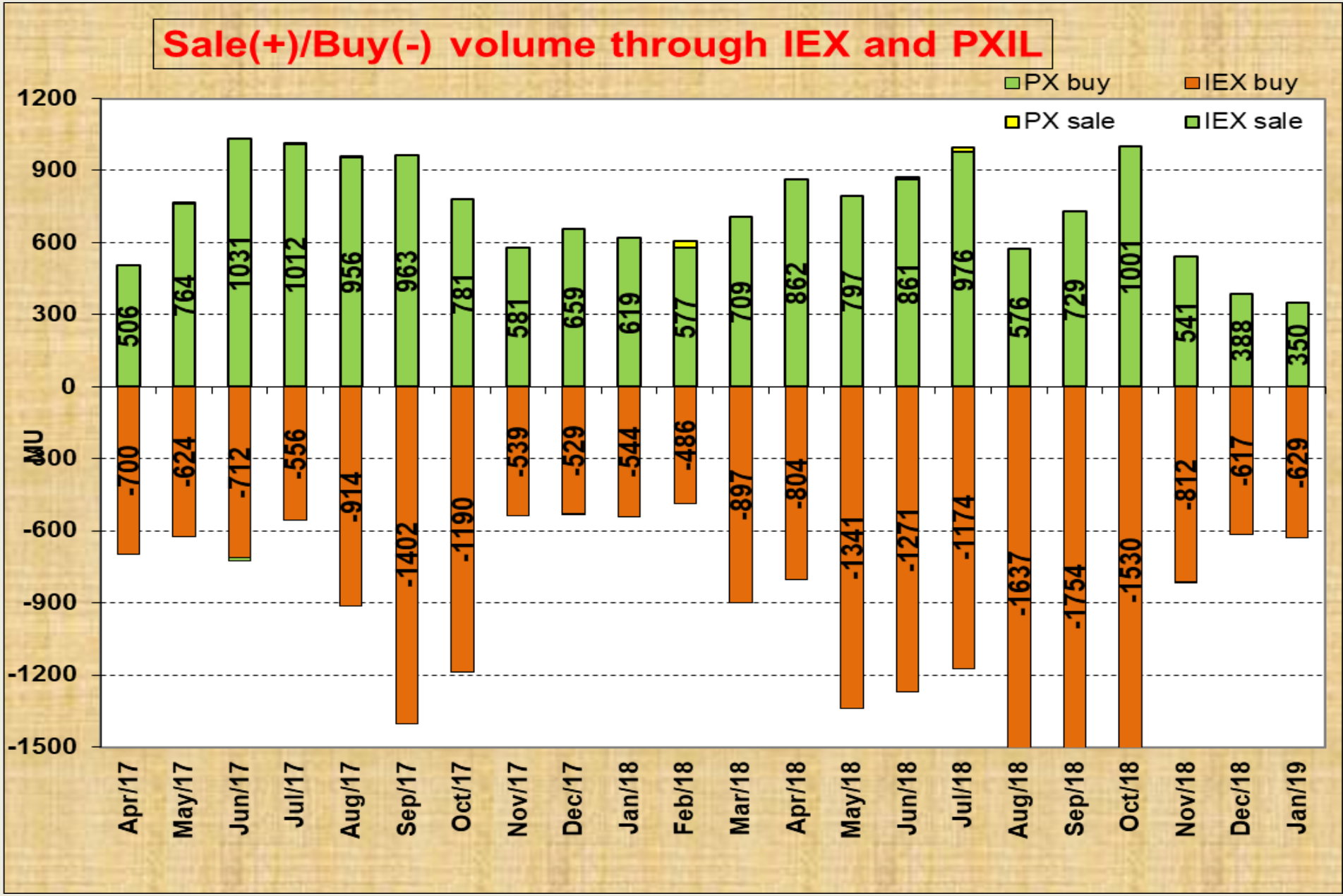
Available Installed capacity over the period was 150 MW, less due to **outage of U-2,4 (100 Mw) for capital maintenance and U-4(50 Mw)** and U-2 Replacement of old AVR with new DAVR.

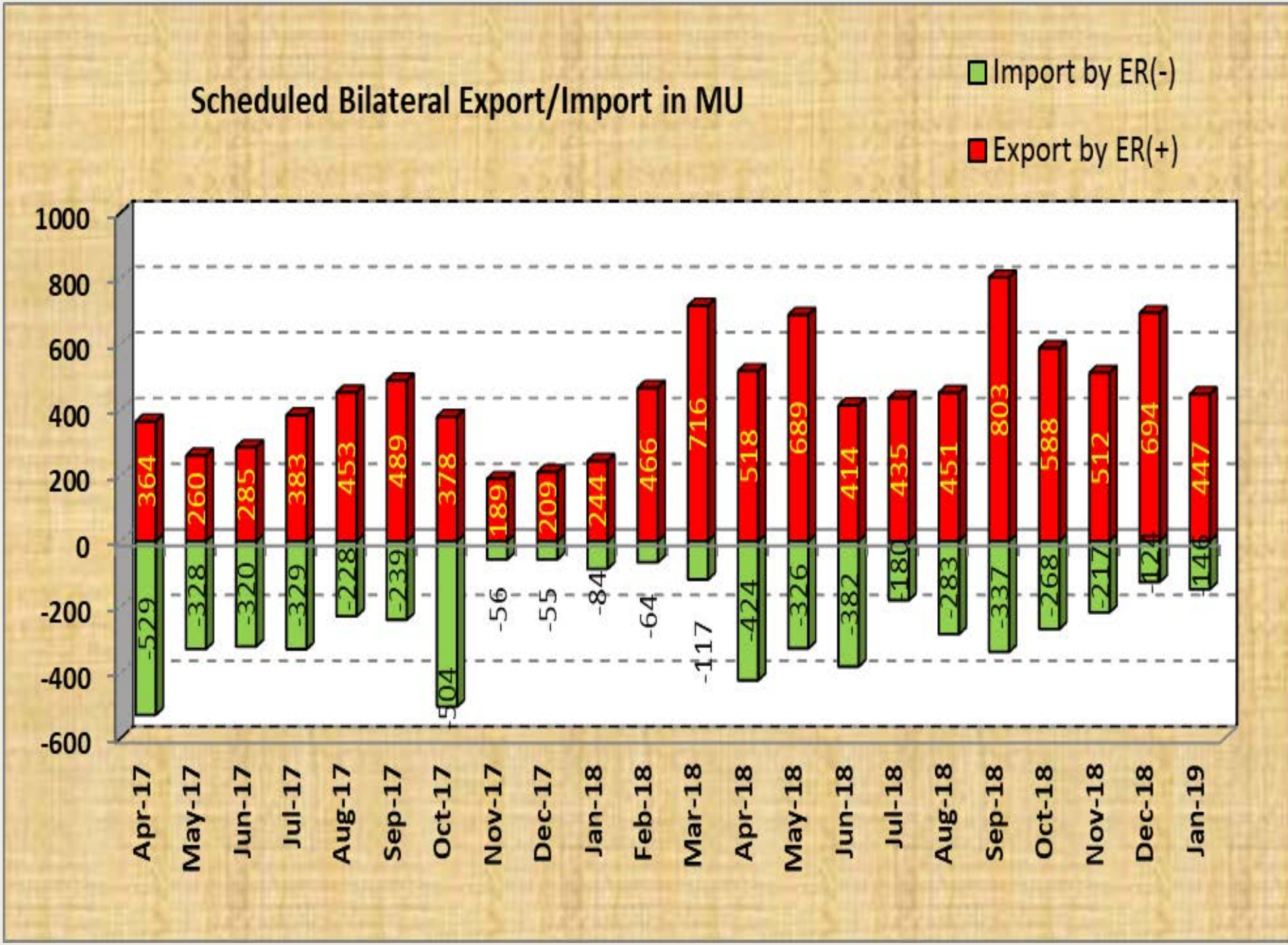


Available Installed capacity over the period was 240 MW, less due to **long outage of U-2 (80 Mw) for** repair of MIV and draft tube gate Leakage

Trading in Exchange and Bilateral STOA

Sale(+)/Buy(-) volume in MU through IEX and PXIL




Scheduled Bilateral Export/Import in MU
Import by ER(-)
Export by ER(+)
1000
800
600
400
200
0
-200
-400
-600
364
260
285
383
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THANKYOU