



# POWER SYSTEM OPERATION CORPORATION LIMITED

## National Load Despatch Center

### Preliminary Report on Pan India Lights Switch Off Event on 5<sup>th</sup> April 2020

#### Background

The Hon'ble Prime Minister of India appealed to the citizens on 3<sup>rd</sup> April 2020 at 09:10 Hrs to switch off their lights and light lamps/ candles on 5<sup>th</sup> April 2020 at 21:00 Hrs for 9 minutes. Looking at the various suggestions floating in social media such as the need to switch off all household appliances for the safety of equipments or switching on additional devices, the Hon'ble Minister of State for Power (I/C) issued a press release <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1611020> dated 4<sup>th</sup> April 2020 clarifying the need for switching off the lights only.

The anticipated reduction in all India demand during this period of 9 minutes was around 12000 - 14000 MW considering that only lights would be switched off. A detailed advisory was issued by POSOCO on 4<sup>th</sup> April 2020 afternoon after a conference call with all the State Load Despatch Centers and the major hydro plants in the country. A copy of this advisory is enclosed at Annexe – I. Elaborate mock exercise on hydro ramping was carried out on 4<sup>th</sup> April 2020 night and 5<sup>th</sup> April 2020 morning.

#### Event Summary

- The total reduction in all India demand recorded during the event was **31089 MW**. All India demand started reducing from **20:45 Hrs** and minimum demand of **85,799 MW** was recorded at **21:10 Hrs**. Subsequently, from **21:10 Hrs**, the demand started picking up and settled around **114400 MW** at **22:10 Hrs**.
- Grid Frequency during the event remained in the range of **50.26 Hz to 49.70 Hz** with maximum and minimum frequency of **50.259 Hz** and **49.707 Hz** recorded at **20:49 Hrs** and **21:08 Hrs** respectively.

The All India and Region wise demand details for the event are as under: -

Time (Hrs)	Demand (MW)						Reduction w.r.t. All India Demand at 20:45 Hrs
	NR	WR	SR	ER	NER	All India	
20:45	31791	32474	35012	15815	1796	116887	0
20:50	31339	32113	35109	15452	1761	115775	-1113
20:55	30148	31462	35019	14928	1693	113251	-3637
21:00	26683	28091	32688	12752	1453	101667	<b>-15220</b>
21:10	22061	24010	29034	9679	1015	85799	<b>-31089</b>
21:15	24956	26992	30665	11879	1303	95795	<b>-21092</b>
21:30	28433	30777	33394	14689	1515	108808	-8080
21:45	28633	32403	34096	15140	1523	111796	-5092
22:00	28544	32944	34647	15231	1437	112803	-4084

Trend of All India and Regional Demands during the event is attached at **Annexe-II**



## ✚ Actions Taken

- Hydro generation across the country was maximized by 20:45 Hrs and generation reduction of **17543 MW (from 25559 MW to 8016 MW)** between **20:45 Hrs to 21:10 Hrs** (matching with demand reduction of **31089 MW** during the same period) was achieved with these resources. This hydro generation was again ramped up from **8016 MW to 19012 MW** from **21:10 Hrs to 21:27 Hrs** to meet the increase in demand after the event.
  - Reduction of total **10950 MW** generation was achieved through **Thermal (6992 MW), Gas (1951 MW) and Wind generation (2007 MW)** during **20:45 Hrs to 21:10 Hrs**.
  - Advance actions such as switching off transmission lines, taking reactors in service, changing SVC, STATCOM, HVDC set points etc. were taken prior to the event for keeping voltages and line loadings within permissible limits.
- ✚ The event was managed smoothly without any untoward incident while power system parameters were maintained within limits.
- ✚ POSOCO acknowledges the support and co-operation of all the stakeholders in successfully meeting this unprecedented challenge.

### Encl:

**Annexure-I:** - POSOCO Advisory for Reliable & Secure System Operation during the lighting load switch off event

**Annexure- II:** - Trend of All India and Regional Demand

**Annexure-III:** - Trend of Thermal, Hydro and Gas Generation



## Power System Operation Corporation Limited

### National Load Despatch Center

Ref. No.: NLDC/SO/2020-21

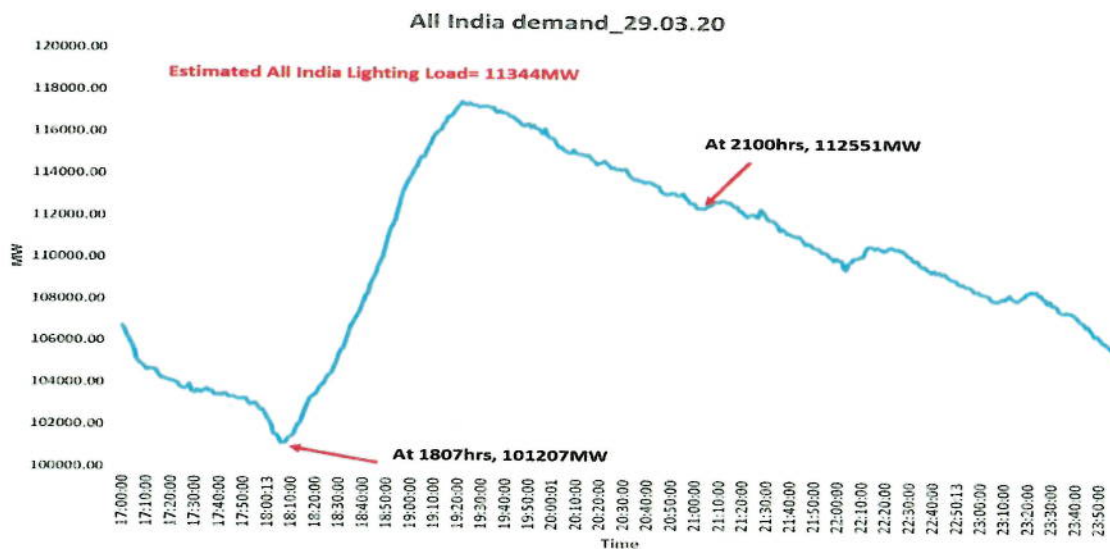
Date: 04<sup>th</sup> April 2020.

**Sub: Advisory for Reliable & Secure System Operation during the lighting load switch off on 05<sup>th</sup> April 2020 at 21:00 hrs for nine (9) minutes.**

In order to ensure reliable and secure grid operation during upcoming event, a meeting of all SLDCs, RLDCs and NLDC was convened on 4<sup>th</sup> April 2020. The operational guidelines finalized after discussion are outlined below:-

#### **A.) Estimate of demand reduction:**

From the demand pattern of 29<sup>th</sup> March 2020 (Sunday), it has been observed that nadir All India demand was around 101207 MW at 1807 hrs and subsequently it has increased up to 112551 MW at 2100 hrs during evening peak. Therefore, considering the load behavior, it is anticipated that lighting load of household consumers may be the difference of all India demand at 18:07 hrs and 21:00 hrs i.e. 11344 MW. The all India demand curve of 29<sup>th</sup> March 2020 is given below.



Further, a separate exercise has been carried out to find the total demand reduction at grid level based on the number of household consumers in India. The calculated total reduction in demand which is reflected at grid level is 12452 MW. The summation of demand reduction anticipated by SLDCs for respective states is approx. 15085 MW. The complete state wise load reduction details are attached as Annexure-I and summary of region wise load reduction details is tabulated below.



**Region Wise Details of load reduction during light switch off event on 05<sup>th</sup> April 2020**

S.No.	Region	No of Rural household consumers (a)	No of urban household consumers (b)	Load of Rural household consumers (MW) (c = 50*a)	Load of urban household consumers (MW) (d = 100*b)	Reduced Load of Rural household Consumers (MW) (e = c*.80)	Reduced Load of urban household Consumers (MW) (f = d*.80)	Total Reduced Demand as reflected at consumer level (MW) (g = e+f)	Total Reduced Demand as reflected at Grid level (MW) (g / 0.9)
1	Northern	42293470	13214064	2115	1321	1692	1057	2749	3054
2	Western	35669904	19020928	1783	1902	1427	1522	2948	3286
3	Southern	43854642	4668665	2193	467	1754	373	2128	3407
4	Eastern	41183918	4515705	2059	452	1647	361	2009	2168
5	North Eastern	8362568	1689177	418	169	335	135	470	537
	<b>Total</b>	<b>171364502</b>	<b>43108539</b>	<b>8568</b>	<b>4311</b>	<b>6855</b>	<b>3449</b>	<b>10303</b>	<b>12452</b>

From both the above methods and as per inputs received from SLDCs, it is inferred that total reduction in domestic lighting load on all India level is anticipated in the range of 12-14 GW.

Unlike normal operation, this reduction in load of the order of 12-14 GW would happen in 2-4 minutes and will recover nine minutes later within 2-4 minutes. This sharp reduction in load and subsequent recovery, which is unprecedented, will need to be handled through hydro and gas resources identified and enclosed at Annexure-II.

**B.) Generation Scheduling & Frequency Control**

- a. All clocks at generating stations may be synchronized to Indian standard time (IST).
- b. During the evening peak hours i.e. from 18:10 to 20:00 hrs, hydro generation will be reduced and conserved for providing flexibility during 21:00 hrs event. During this time thermal and gas generation shall be scheduled in a manner so as to manage the peak.
- c. Subsequently after the peak hours, thermal Inter State Generating Stations (ISGS) generation would be gradually reduced to near technical minimum level of 60 % by 20:55 hrs. and simultaneously hydro generation shall be increased to maintain the load generation balance.
- d. Hydro generation and gas generation shall be ramped down starting from 20:57 hrs. keeping a watch on the system frequency. The hydro units should be kept rolling at 0 – 10 % of the rating and not to be disconnected during this period. Gas station shall be ramped down to the minimum level.
- e. Ramping up of thermal machines shall be carried out from 21:05 hrs onwards. Further, from 21:09 hrs onwards, Hydro generation shall be ramped up to meet the increase in load. After stabilization of system parameters, hydro units may be withdrawn in consultation with RLDCs & SLDCs.
- f. Pumped storage hydro units shall be brought in pumping mode by 20:45 hrs and will be kept in service till 21:09 hrs. After that, machines shall be

- withdrawn from the grid through under frequency relays graded between 49.90 to 49.70 Hz amongst the units at each of the pumped hydro stations.
- g. Wind generators of ISGS/ intra state level shall be advised to automatically disconnect the wind generating plants at the ISTS/intra state transmission level when frequency is more than 50.2 Hz. This over frequency setting may be removed after the event & units synchronized after 21:30 hrs. This setting may be implemented at the transmission level sub-stations.
  - h. For having a better level of ramping resources, Security Constrained Economic Despatch (SCED) may be stopped from 1800 hours onwards and would be resumed any time after the event.
  - i. All India grid frequency may be kept at lower side of the IEGC band i.e 49.90 Hz from 20:30 hrs onwards in view of anticipated frequency rise due to demand reduction at 21:00 hrs.
  - j. Likewise, all India grid frequency shall be maintained on the higher side at around 21:09 Hrs i.e. 50.15 Hz in view of anticipated drop in frequency due to restoration of load.
  - k. Primary response of all generating stations shall be in service. All the hydro power plants would reduce their governor droop setting from the current level of 4-5% to 1-2% or whatever lower value feasible latest by 1200 hours of 5<sup>th</sup> April 2020 and confirm to the respective SLDC/RLDC the revised settings implemented. This would be reverted to the original setting anytime on 6<sup>th</sup> April 2020.
  - l. All defense mechanisms such as Under Frequency / df/dt relays and Automatic demand management systems shall be in service and healthiness shall also be ensured.
  - m. The distributed and diverse actions by the households across the country between 20:45 Hrs to 21:30 Hrs may cause the grid frequency to vary between 49.50 Hz to 50.50 Hz.

**C.) Voltage Control measures:**

- a. Since COVID-19 containment measures implemented from 25<sup>th</sup> March 2020 nearly 220-240 lines at 400 kV voltage level and above are kept in open condition for voltage control. System voltages have been within the Indian Electricity Grid code (IEGC) band. As per studies during the above event the voltage levels would be within control keeping the generation scheduling as per section-B above. The list of 400 kV and above buses where the voltage level is expected to rise by more than 0.01 pu is indicated at Annexure-III.
- b. Notwithstanding the above, all switching operation of transmission lines, line reactors & bus reactors shall be completed by 20:00 hrs. to keep voltages preferably around 760/400kV respectively.
- c. All reactors should put in service wherever required, latest by 20:00 hrs .
- d. STATCOMS and SVCs shall be in voltage control mode with reference voltage of 400 kV.
- e. Capacitors at distribution level to be kept off to maintain voltage at nominal.



- f. All thermal and hydro machines would absorb/generate reactive power as per capability curve. It is expected that the operation of hydro units in the 0-10% would increase the reactive power generation/absorption capability.

**D.) General guidelines :**

- a. Telephone numbers of all control centers, generating stations and substations under respective jurisdictions of SLDCs, RLDCs and NLDC shall be readily available in control rooms.
- b. All regional entities may be advised to maintain their interchange with the grid as per schedule.
- c. Reserve Regulation Ancillary Service (RRAS) dispatch instructions for ISGS shall be issued by NLDC to maintain the load-generation balance in real-time.
- d. HVDC set points may be kept in a manner such that adequate margin in inter-regional corridors is available and keep Inter/ Intra regional node voltages as suggested above.
- e. All SLDCs may advise DISCOMs to avoid any feeder switching operation from 20:00 to 22:00 hrs.
- f. Round the clock availability of communication systems & SCADA data shall be ensured by all entities.
- g. Strengthening of control room staff may be carried out NLDC and all RLDCs/SLDC shall remain in alert mode and monitor the grid closely in order to take care of any contingency.
- h. SLDCs shall advise respective DISCOMs to ensure that distribution substations, housing society/ residential apartments main supply shall not be switched off at feeder / mains level. Necessary direction may also be sent to Resident Welfare Associations (RWA) in this regard. Further, all other lighting loads such as street lighting, colony lights and other essential services including supply to hospitals shall continue to remain in service as per normal practice in the interest of public safety.
- i. DISCOMs may be advised to issue prominent messages to general public and municipalities to switch off only domestic lights and all other household loads/appliances shall be used normally.
- j. All RLDCs/SLDCs & NLDC are advised to extend the evening shift timings till 22:00 hrs. preferably and allow overlap with the incoming night shift.
- k. All the entities shall ensure black start facilities mentioned in the restoration procedures of RLDCs are in healthy condition.

All senior personnel should be available at the generating stations, substations, Load Despatch Centers (LDCs) between 18:00 to 22:00 hrs. on 05<sup>th</sup> April 2020.



**(Debasis De)**

Executive Director, NLDC

Distribution

NLDC/ All RLDCs/ SLDCs/ DISCOMS/ Transmission Licensee/ Generators

## Region Wise Details of load reduction during light switch off event on 05th April 2020

S.No.	Region	No of Rural household consumers (a)	No of urban household consumers (b)	Load of Rural household consumers (MW) (c = 50*a)	Load of urban household consumers (MW) (d = 100*b)	Reduced Load of Rural household Consumers (MW) (e = c*.80)	Reduced Load of urban household Consumers (MW) (f = d*.80)	Total Reduced Demand as reflected at consumer level (MW) (g = e+f)	Total Reduced Demand as reflected at Grid level (MW) (g / 0.9)
1	Northern Region	42293470	13214064	2115	1321	1692	1057	2749	3054
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Note	The source of no of rural and urban household consumers is saubhagya web portal
	It is assumed that Load of each rural and urban household consumer are 50 and 100 Watt respectively
	It is assumed that both load of each rural and urban consumer will reduce by 80%.
	Transmission and distribution losses are considered as 10 %.

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## State Wise details of load reduction during light switch off event on 05th April 2020

S.No	State/UT	No of Rural household consumers (a)	No of urban household consumers (b)	Load of Rural household consumers (MW) (c = 50*a)	Load of urban household consumers (MW) (d = 100*b)	Reduced Load of Rural household Consumers (MW) (e = c*.80)	Reduced Load of urban household Consumers (MW) (f = d*.80)	Total Reduced Demand as reflected at consumer level (MW) (g = e+f)	Total Reduced Demand as reflected at Grid level (MW) (g / 0.9)	Demand reduction as assessed by SLDC (MW)
1	Uttar Pradesh	21053398	8123365	1053	812	842	650	1492	1658	2000
2	Rajasthan	9178075	3580576	459	358	367	286	654	726	695
3	Punjab	3693050	11	185	0	148	0	148	164	400
4	Haryana	3469097	875	173	0	139	0	139	154	500
5	Jammu & Kashmir	1881056	579306	94	58	75	46	122	135	130
6	Uttarakhand	1532454	560602	77	56	61	45	106	118	170
7	Himachal Pradesh	1486340	369329	74	37	59	30	89	99	120
8	Maharashtra	14761239	10060801	738	1006	590	805	1395	1550	1744
9	Madhya Pradesh	9736193	2884814	487	288	389	231	620	689	2100
10	Gujarat	6554612	4859920	328	486	262	389	651	723	800
11	Chhattisgarh	4489652	1215393	224	122	180	97	277	308	250
12	Goa*	128208	0	6	0	5	0	5	16	16
13	Telangana	6157086	442654	308	44	246	35	282	313	500
14	Andhra Pradesh	11407070	55932	570	6	456	4	461	512	600
15	Tamil Nadu*	10285848	0	514	0	411	0	411	1500	1500
16	Karnataka	8804899	1461170	440	146	352	117	469	521	580
17	Kerala	7104123	2708909	355	271	284	217	501	557	500
18	Puducherry	95616	0	5	0	4	0	4	4	
19	Odisha	8208971	1462882	410	146	328	117	445	495	500
20	Jharkhand	5910110	987240	296	99	236	79	315	350	250
21	Bihar	11907539	2065583	595	207	476	165	642	713	660
22	West Bengal*	15058530	0	753	0	602	0	602	600	600
23	Sikkim*	98768	0	5	0	4	0	4	10	10
24	Assam	5992843	1109764	300	111	240	89	328	365	250
25	Tripura*	791553	0	40	0	32	0	32	50	50
26	Meghalaya	561913	73889	28	7	22	6	28	32	40
27	Manipur	412815	40858	21	4	17	3	20	22	40
28	Nagaland	276726	247144	14	25	11	20	31	34	20
29	Arunachal Pradesh	202875	99486	10	10	8	8	16	18	30
30	Mizoram	123843	118036	6	12	5	9	14	16	30
	<b>Total</b>	<b>171364502</b>	<b>43108539</b>	<b>8568</b>	<b>4311</b>	<b>6855</b>	<b>3449</b>	<b>10303</b>	<b>12452</b>	<b>15085</b>

Note

The source of no of rural and urban household consumers is saubhagya web portal

It is assumed that Load of each rural and urban household consumer are 50 and 100 Watt respectively

It is assumed that both load of each rural and urban consumer will reduce by 80%.

Transmission and distribution losses are considered as 10 %.

\* SLDC assesment has been considered as the updated data was not available in saubhagya portal.





## Operating Margin for Hydro and Gas Stations

## Annexure II

S.No.	Name	Utility	Type	Installed Capacity	Maximum generation by 20:45 hrs and after the recovery	Minimum Generation possible	Flexibility
<b>Northern Region</b>							
1	Bairasiul	NHPC	Pondage	180	110	20	90
2	Chamera-II	NHPC	Pondage	300	100	10	90
3	Chamera-I	NHPC	Pondage	540	534	21	513
4	Salal	NHPC	Run of River	690	700	36	664
5	Dhauliganga	NHPC	Pondage	280	292	28	264
6	Tanakpur	NHPC	Run of River	94.2	62	24	38
7	Chamera-III	NHPC	Pondage	231	240	60	180
8	Parbati III	NHPC	Pondage	520	130	10	120
9	Dulhasti	NHPC	Pondage	390	390	120	270
10	Naptha Jhakri	SJVN	Pondage	1500	1482	1020	462
11	Rampur	SJVN	Pondage	412	412	294	118
12	Tehri	THDC	Storage	1000	760	100	660
13	Koteshwar	THDC	Storage	400	102	70	32
14	Koldam	NTPC	Pondage	800	792	160	632
15	Pong	BBMB	Storage	396	180	0	180
16	Dehar	BBMB	Run of River	990	645	560	85
17	Bhakra complex	BBMB	Storage	1379	1035	260	775
18	Baglihar	J&k		900	300	240	60
19	KWHEP	JSW Energy	Pondage	1000	890	150	740
20	RSD	Punjab		600	450	0	450
21	Ramgarh gas	Rajasthan		110	100	50	50
22	Jawahar Sagar	Rajasthan		99	99	33	66
23	Mahi	Rajasthan		50	50	25	25
24	Vishuprayag	UP		440	70	35	35
25	alalnanda	UP		330	150	0	150
26	Rihand	UP		300	170	0	170
27	Obra	UP		99	50	0	50
28	Baspa	HP		300	90	30	60
29	Bhabha			120	40	0	40
30	giri			60	20	0	20
31	bassi			60	15	0	15
32	Larzi			126	126	20	106
33	chibro plus khodri	Uttarakhand		360	360	260	100
34	Dharasu			304	152	52	100
	<b>Total</b>				<b>11098</b>	<b>3688</b>	<b>7410</b>

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## Operating Margin for Hydro and Gas Stations

## Annexure II

S.No.	Name	Utility	Type	Installed Capacity	Maximum generation by 20:45 hrs and after the recovery	Minimum Generation possible	Flexibility
<b>Western Region</b>							
1	Koyna IV Hy	Maharashtra		1000	1000	0	1000
2	Koyna III Hy			320	320	0	320
3	Koyna I & II Hy			600	600	41	559
4	Bhira Hy			150	70	0	70
5	Uran Gas			672	295	273	22
6	Hira	Gujarat		150	150	100	50
7	Ukai Hy			300	70	10	60
8	Kadana Hy			240	60	10	50
9	Utran Gas				190	60	130
10	Dhuvaran Gas				350	190	160
11	Pipavav Gas				680	460	220
12	Hazira Gas				340	230	110
13	Indirasagar Hy	Madhya Pradesh		1000	500	0	500
14	Omkareshwar Hy			520	330	0	330
15	Hasdeo Bango Hy	Chattisgarh		120	40	0	40
16	Sardar Sarovar Hydro	Shared		1450	830	50	780
17	Kawas Gas			656	460	280	180
18	Gandhar Gas			657	190	170	20
	<b>Total</b>				6475	1874	4601

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## Operating Margin for Hydro and Gas Stations

## Annexure II

S.No.	Name	Utility	Type	Installed Capacity	Maximum generation by 20:45 hrs and after the recovery	Minimum Generation possible	Flexibility
<b>Southern Region</b>							
1	SRISAILAM RBPH		Storage	770	660	480	180
2	LOWER SILERU		Storage	460	300	240	60
3	UPPER SILERU		Storage	240	170	150	20
4	DONKARAYI		-	25	15	12	3
5	NSR RT.CANAL.P.H		-	90	0	0	0
6	SRISAILAM LBPH		Storage	900	625	500	125
7	N'SAGAR		Storage	815.6	360	200	160
8	NSR LT.CANAL.P.H		Storage	60	20	0	20
9	JURALA		Run of River	234	0	0	0
10	LOWER JURALA		Run of River	240	0	0	0
11	PULICHINTALA		Run of River	120	0	0	0
12	SHARAVATHY		Storage	1035	950	200	750
13	NAGJHERI		Storage	885	840	480	360
14	VARAHI		Storage	460	460	60	400
15	SHARAVATHI TAIL RACE		Storage	240	220	140	80
16	KADRA		Storage	150	150	114	36
17	JOG (MGHES)		Storage	139.2	46	30	16
18	KODASALLI		Storage	120	120	72	48
19	SUPA		Storage	100	96	0	96
20	LINGANAMAKKI.P.H.		Storage	55	42	20	22
21	ALMATTI		Run of River	290	0	0	0
22	IDUKKI		Storage	780	360	90	270
23	SABARIGIRI		Storage	340	320	160	160
24	KUTTIADI + EXTENTION		Storage	225	200	105	95
25	L.PERIYAR		Storage	180	162	135	27
26	NERIAMANGALAM + EXT.		Storage	77.5	73	64	9
27	IDAMALAYAR		Storage	75	52	40	12
28	SHOLAYAR		Storage	54	36	20	16
29	KAKKAD		Storage	50	36	34	2
30	KADAMPARAI		Storage	400	0	0	0
31	METTUR TUNNEL		Run of River	200	0	0	0
32	KUNDAH-I to VI		Storage	585	455	135	320
33	PYKARA ULTIMATE (PUSHEP)		Storage	150	150	60	90
34	PERIYAR		Storage	140	0	0	0
35	LOWER METTUR BARRIAGE - 1 TO 4		Run of River	120	15	15	0
36	KODAYAR		Storage partial	100	42	20	22
37	SHOLAYAR		Storage	95	0	0	0
38	ALIYAR		Storage	60	60	5	55
39	BHAVANI KATTALAI BARRAGE - I & II		Run of River	60	10	10	0
40	PYKARA		Storage	58.95	0	0	0
41	METTUR DAM		Run of River	50	24	24	0
	<b>Total</b>				<b>7069</b>	<b>3615</b>	<b>3454</b>

*சுப்பிரமணியன்*

## Operating Margin for Hydro and Gas Stations

## Annexure II

S.No.	Name	Utility	Type	Installed Capacity	Maximum generation by 20:45 hrs and after the recovery	Minimum Generation possible	Flexibility
<b>Eastern Region</b>							
1	RANGIT HPS	ISGS	Pondage (3hr.)	60	60	21	39
2	TEESTA HPS	ISGS	Pondage (3hr.)	510	510	60	450
3	CHUZACHEN	IPP	Run of River	99	99	0	99
4	DIKCHU Hep	IPP	Run of River	96	96	0	96
5	JORETHANG	IPP	Run of River	96	96	0	96
6	TASHIDING	IPP	Run of River	97	97	0	97
7	TEESTA STG III Hep	Odisha	Storage	1200	1200	120	1080
8	BALIMELA HPS	Odisha	Storage	330	330	140	190
9	BURLA HPS/HIRAKUD I	Odisha	Storage	85.5	86	22	64
10	CHIPLIMA HPS / HIRAKUD II	Odisha	Storage	24	24	8	16
11	INDRAVATI	Odisha	Storage	450	450	150	300
12	RENGALI HPS	Odisha	Storage	150	150	120	30
13	U.KOLAB	Odisha	Storage	320	320	80	240
14	MAITHON	DVC	Storage	63	50	15	35
15	PANCHET	DVC	Storage	80	60	15	45
16	PPSP	West Bengal	PUMP STORAGE	900	900	640	260
17	TLDP III	West Bengal	Pondage (3hr.)	132	132	18	114
18	TLDP IV	West Bengal	Pondage (3hr.)	160	160	24	136
	<b>Total</b>				4820	1433	3387
<b>North Eastern Region</b>							
1	AGBPP-GAS	NEEPCO		291	210	155	55
2	AGTCCPP-GAS	NEEPCO		135	122	71	51
3	DOYANG	NEEPCO	Run of River	75	16.6	15	1.6
4	LOKTAK	NHPC	Storage	105	69	16	53
5	PALATANA-GAS	OTPC		726	590	400	190
6	PARE	NEEPCO	Run of River	110	54	45	9
7	RANGANADI	NEEPCO	Run of River	405	401	220	181
	<b>Total</b>				1463	922	541
<b>All India Figures</b>							
					<b>Maximum</b>	<b>Minimum Generation</b>	<b>Flexibility</b>
	<b>Total</b>				30924	11532	19392

*Signature*



765 kV Stations with maximum increase in voltage							
BUS No.	BUS	VOLTAGE (pu) - Case A 2nd April -21:00 Hrs	VOLTAGE (pu) - Case B 5th April - 21:00 Hrs	DELTA (pu)	Voltage (kV) - Case A	Voltage (kV) - Case B	DELTA KV
337009	[PUNE GIS-PG 765.00]	1.012	1.019	0.007	774.1	779.5	5.4
337008	[EKTUNI 765.00]	1.002	1.008	0.007	766.3	771.4	5.1
337006	[DHULE-BDTCL 765.00]	0.982	0.988	0.006	751.5	756.0	4.5
337005	[AURANGABD-PG765.00]	1.025	1.031	0.005	784.5	788.6	4.1
337012	[NEW PARLI-PG765.00]	1.027	1.032	0.005	786.0	789.6	3.6
337004	[SOLAPUR-PG 765.00]	1.025	1.030	0.005	784.4	787.9	3.5
337002	[AKOLA 765.00]	1.003	1.008	0.004	767.6	770.8	3.2

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400 kV Stations with maximum increase in voltage								
BUS No.	BUS	VOLTAGE	VOLTAGE (pu) - Case A 2nd April -21:00 Hrs	VOLTAGE (pu) - Case B 5th April - 21:00 Hrs	DELTA (pu)	Voltage (kV) - Case A	Voltage (kV) - Case B	DELTA KV
524005	[MISA4	400.00]	0.995	1.017	0.022	397.89	406.80	8.91
524006	[AZARA4	400.00]	1.011	1.031	0.020	404.58	412.42	7.85
544001	[KILLING4	400.00]	1.023	1.041	0.018	409.13	416.48	7.35
534001	[IMPHAL-PG4	400.00]	1.043	1.060	0.018	417.01	424.10	7.10
524004	[BALIPARA FSC	400.00]	0.991	1.008	0.016	396.54	403.02	6.48
524009	[SILCHAR4	400.00]	1.030	1.046	0.016	411.82	418.29	6.47
514002	[KAMENG4	400.00]	1.003	1.019	0.016	401.18	407.55	6.37
524003	[BALIPARA4	400.00]	1.001	1.017	0.016	400.43	406.78	6.35
454008	[KOZHIKODE	400.00]	1.044	1.059	0.015	417.48	423.51	6.03
524007	[BCHARIALI4	400.00]	1.001	1.016	0.015	400.30	406.28	5.98
524002	[BGTPP-NTPC4	400.00]	1.000	1.014	0.013	400.19	405.50	5.30
524001	[BONGAIGAON4	400.00]	1.001	1.014	0.013	400.52	405.79	5.27
434020	[MYSORE	400.00]	1.050	1.063	0.013	420.12	425.30	5.18
334017	[SOLAPUR-MS	400.00]	1.012	1.025	0.013	404.84	409.96	5.11
434013	[HASSAN	400.00]	1.052	1.064	0.012	420.84	425.60	4.76
334035	[NASIK-SINNER	400.00]	1.019	1.029	0.011	407.43	411.72	4.29
334012	[BABLESHWAR	400.00]	1.017	1.027	0.011	406.67	410.95	4.28
434021	[UDUPI PCL	400.00]	1.032	1.042	0.010	412.63	416.78	4.15
334016	[JEJURI	400.00]	1.003	1.013	0.010	401.27	405.40	4.13

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## All India Demand &amp; Generation - 5th April 2020

Time	Demand Met (MW)	Hydro Generation (MW)	Gas Generation (MW)	Thermal Generation (MW)
20:30	117797	24261	7257	77609
20:31	117896	24499	7163	77324
20:32	117666	24453	7099	77110
20:33	117586	24799	7052	76983
20:34	117700	25121	7049	76855
20:35	117785	25306	7037	76735
20:36	117898	25449	7077	76609
20:37	117758	25501	7091	76530
20:38	117663	25509	7079	76403
20:39	117454	25551	7090	76280
20:40	117303	25477	7142	76067
20:41	117165	25521	7164	75892
20:42	117063	25515	7273	75748
20:43	116938	25478	7276	75591
20:44	116959	25475	7302	75515
20:45	116887	25559	7305	75277
20:46	116864	25676	7333	75121
20:47	116714	25434	7395	74941
20:48	116569	25316	7397	74918
20:49	116162	25176	7436	74797
20:50	115775	24838	7419	74716
20:51	115482	24592	7495	74616
20:52	115150	24362	7484	74498
20:53	114718	24212	7512	74270
20:54	114286	23886	7412	74145
20:55	113251	22848	7336	74037
20:56	111778	21921	7385	73811
20:57	110333	20817	7291	73600
20:58	108073	18965	7241	73311
20:59	105632	17618	7060	72740
21:00	101667	14890	6865	72170
21:01	97471	12222	6526	71060
21:02	94034	10480	6259	70331
21:03	91088	9357	5974	69756
21:04	89644	9091	5867	69179
21:05	88731	8955	5730	68811
21:06	87880	8743	5613	68325
21:07	87206	8569	5508	68119
21:08	86557	8293	5423	67942
21:09	85901	8019	5372	67952
21:10	85799	8016	5355	68037
21:11	86629	8817	5433	68079
21:12	88821	10664	5565	68425
21:13	91837	12641	5791	69001
21:14	93970	13750	5996	69638
21:15	95795	14520	6199	70052
21:16	97518	15037	6301	70564
21:17	99081	15548	6472	71207
21:18	100625	16385	6599	71670
21:19	101775	16837	6688	72165



### All India Demand & Generation - 5th April 2020

Time	Demand Met (MW)	Hydro Generation (MW)	Gas Generation (MW)	Thermal Generation (MW)
21:20	103033	17625	6734	72460
21:21	104125	17985	6868	72985
21:22	104965	18138	6909	73353
21:23	105553	18298	6997	73746
21:24	106089	18357	6995	74062
21:25	106854	18612	7045	74348
21:26	107376	18796	7067	74568
21:27	107790	19012	7129	74723
21:28	108045	18958	7164	74874
21:29	108468	18970	7163	75235
21:30	108808	18923	7175	75661
21:31	109074	18766	7151	76037
21:32	109181	18687	7130	76286
21:33	109415	18736	7070	76504
21:34	109712	18902	7069	76617
21:35	109926	18860	7038	76863
21:36	110270	18939	6987	77006
21:37	110696	19007	6960	77262
21:38	110768	18928	6970	77423
21:39	110972	18851	6989	77512
21:40	111160	18839	6931	77709
21:41	111457	18868	6867	78039
21:42	111629	18784	6859	78251
21:43	111855	18724	6868	78542
21:44	111842	18626	6855	78763
21:45	111796	18506	6921	79121
21:46	111943	18449	6932	79473
21:47	111643	18076	6915	79700
21:48	111861	18184	6942	79899
21:49	111953	18084	6928	80089
21:50	112101	17896	6882	80182
21:51	112220	17572	6901	80395
21:52	112305	17457	6899	80663
21:53	112547	17524	6919	80969
21:54	112601	17309	6924	81114
21:55	112703	17221	6920	81308
21:56	112704	17263	6925	81423
21:57	112851	17284	6920	81449
21:58	112904	17200	6927	81463
21:59	113020	17094	6937	81489
22:00	112803	16863	6973	81630
<b>Maximum (MW)</b>	<b>117898</b>	<b>25676</b>	<b>7512</b>	<b>81630</b>
<b>Time</b>	<b>20:36</b>	<b>20:46</b>	<b>20:53</b>	<b>22:00</b>
<b>Minimum (MW)</b>	<b>85799</b>	<b>8016</b>	<b>5355</b>	<b>67942</b>
<b>Time</b>	<b>21:10</b>	<b>21:10</b>	<b>21:10</b>	<b>21:08</b>
<b>Max-Min (MW)</b>	<b>32099</b>	<b>17659</b>	<b>2157</b>	<b>13688</b>



### Demand Met (MW) - 5 Apr 2020

Time	NR	WR	SR	ER	NER	All India
20:30	32438	33122	34010	16324	1903	117797
20:31	32336	33013	34176	16468	1903	117896
20:32	32366	32971	34221	16213	1896	117666
20:33	32287	32841	34310	16255	1893	117586
20:34	32220	32819	34567	16230	1863	117700
20:35	32181	32822	34698	16226	1857	117785
20:36	32172	32805	34844	16215	1862	117898
20:37	32118	32778	34931	16078	1854	117758
20:38	32071	32718	34964	16063	1847	117663
20:39	31995	32633	34918	16069	1838	117454
20:40	31976	32636	34949	15905	1837	117303
20:41	31951	32588	34935	15866	1825	117165
20:42	31907	32568	34838	15937	1812	117063
20:43	31905	32537	34807	15885	1805	116938
20:44	31828	32481	34970	15879	1802	116959
20:45	31791	32474	35012	15815	1796	116887
20:46	31755	32391	35048	15881	1790	116864
20:47	31659	32408	35200	15663	1784	116714
20:48	31628	32353	35296	15515	1777	116569
20:49	31423	32219	35269	15484	1766	116162
20:50	31339	32113	35109	15452	1761	115775
20:51	31232	32115	35147	15268	1720	115482
20:52	31001	31987	35130	15340	1692	115150
20:53	30872	31834	35120	15184	1708	114718
20:54	30673	31656	35111	15150	1696	114286
20:55	30148	31462	35019	14928	1693	113251
20:56	29632	31078	34741	14666	1661	111778
20:57	29203	30670	34408	14404	1648	110333
20:58	28509	29938	34082	13919	1625	108073
20:59	27699	29356	33669	13364	1544	105632
21:00	26683	28091	32688	12752	1453	101667
21:01	25665	26794	31552	12060	1400	97471
21:02	24921	26044	30655	11139	1274	94034
21:03	23695	25544	30075	10578	1196	91088
21:04	23242	25114	29886	10258	1144	89644
21:05	22939	24733	29736	10214	1109	88731
21:06	22743	24533	29555	9970	1079	87880
21:07	22535	24299	29431	9878	1061	87206
21:08	22336	24106	29234	9833	1048	86557
21:09	22045	24045	29074	9699	1038	85901
21:10	22061	24010	29034	9679	1015	85799
21:11	22275	24368	29159	9780	1047	86629
21:12	22986	24904	29632	10232	1068	88821
21:13	23821	25967	30159	10727	1163	91837
21:14	24539	26483	30497	11214	1236	93970
21:15	24956	26992	30665	11879	1303	95795
21:16	25427	27681	30769	12311	1331	97518
21:17	25966	28193	31078	12491	1353	99081
21:18	26339	28542	31516	12824	1403	100625
21:19	26589	28951	31711	13100	1424	101775
21:20	27028	29229	31919	13411	1445	103033
21:21	27324	29432	32116	13799	1454	104125
21:22	27596	29505	32426	13971	1466	104965





### Demand Met (MW) - 5 Apr 2020

Time	NR	WR	SR	ER	NER	All India
21:23	27804	29684	32606	13983	1475	105553
21:24	27926	29900	32710	14053	1500	106089
21:25	28103	30217	32913	14112	1509	106854
21:26	28221	30309	33069	14256	1522	107376
21:27	28256	30498	33124	14391	1521	107790
21:28	28280	30620	33198	14435	1511	108045
21:29	28319	30706	33332	14592	1519	108468
21:30	28433	30777	33394	14689	1515	108808
21:31	28511	30942	33336	14772	1514	109074
21:32	28522	31091	33381	14669	1518	109181
21:33	28588	31191	33363	14760	1513	109415
21:34	28676	31203	33521	14795	1517	109712
21:35	28714	31227	33575	14893	1517	109926
21:36	28746	31385	33735	14886	1519	110270
21:37	28824	31509	33864	14970	1530	110696
21:38	28840	31511	33895	14989	1532	110768
21:39	28863	31621	33966	14999	1522	110972
21:40	28867	31767	33996	15009	1521	111160
21:41	28865	31889	34102	15074	1527	111457
21:42	28845	31974	34163	15125	1522	111629
21:43	28844	32111	34263	15112	1525	111855
21:44	28838	32201	34141	15141	1521	111842
21:45	28633	32403	34096	15140	1523	111796
21:46	28665	32399	34058	15305	1515	111943
21:47	28668	32314	34055	15104	1503	111643
21:48	28647	32526	34081	15101	1505	111861
21:49	28706	32490	34204	15050	1502	111953
21:50	28743	32491	34266	15102	1499	112101
21:51	28761	32465	34436	15070	1490	112220
21:52	28678	32543	34419	15175	1490	112305
21:53	28616	32793	34493	15183	1462	112547
21:54	28622	32815	34517	15187	1460	112601
21:55	28609	32917	34493	15225	1459	112703
21:56	28578	32887	34509	15271	1460	112704
21:57	28608	32923	34565	15293	1462	112851
21:58	28618	32983	34592	15255	1455	112904
21:59	28593	33034	34702	15244	1446	113020
22:00	28544	32944	34647	15231	1437	112803
<b>Maximum Demand (MW)</b>	<b>32438</b>	<b>33122</b>	<b>35296</b>	<b>16468</b>	<b>1903</b>	<b>117898</b>
<b>Time</b>	<b>20:30</b>	<b>20:30</b>	<b>20:48</b>	<b>20:31</b>	<b>20:30</b>	<b>20:36</b>
<b>Minimum Demand (MW)</b>	<b>22045</b>	<b>24010</b>	<b>29034</b>	<b>9679</b>	<b>1015</b>	<b>85799</b>
<b>Time</b>	<b>21:09</b>	<b>21:10</b>	<b>21:10</b>	<b>21:10</b>	<b>21:10</b>	<b>21:10</b>
<b>Max-Min (MW)</b>	<b>10393</b>	<b>9112</b>	<b>6262</b>	<b>6789</b>	<b>888</b>	<b>32099</b>



### Hydro Generation (MW) - 5 Apr 2020

Time	NR	WR	SR	ER	NER	All India
20:30	12173	2905	4232	4333	617	24261
20:31	12291	2905	4360	4326	617	24499
20:32	12557	2905	4393	3980	618	24453
20:33	12593	3143	4479	3968	616	24799
20:34	12604	3198	4707	3993	620	25121
20:35	12619	3203	4834	4030	620	25306
20:36	12617	3209	4957	4048	619	25449
20:37	12574	3209	5042	4058	619	25501
20:38	12527	3212	5103	4048	619	25509
20:39	12539	3207	5111	4075	619	25551
20:40	12557	3221	5154	3926	620	25477
20:41	12520	3228	5261	3893	620	25521
20:42	12466	3233	5299	3898	619	25515
20:43	12427	3223	5361	3848	619	25478
20:44	12331	3225	5431	3867	622	25475
20:45	12358	3219	5475	3880	628	25559
20:46	12402	3218	5557	3879	621	25676
20:47	12233	3218	5827	3536	620	25434
20:48	12241	3179	5841	3413	643	25316
20:49	12170	3172	5828	3361	645	25176
20:50	12170	3177	5583	3263	645	24838
20:51	12151	3234	5475	3087	645	24592
20:52	12013	3243	5368	3092	646	24362
20:53	11878	3220	5367	3073	673	24212
20:54	11391	3170	5587	3066	672	23886
20:55	10559	3078	5598	2995	618	22848
20:56	9866	2914	5635	2939	567	21921
20:57	9376	2568	5570	2750	553	20817
20:58	8396	2171	5615	2285	499	18965
20:59	7975	1992	5456	1776	419	17618
21:00	6644	1797	4601	1474	374	14890
21:01	5531	1659	3415	1262	356	12222
21:02	4894	1533	2731	1008	314	10480
21:03	4478	1437	2421	730	291	9357
21:04	4433	1411	2327	675	244	9091
21:05	4340	1361	2318	737	199	8955
21:06	4213	1345	2313	701	172	8743
21:07	4081	1327	2316	674	171	8569
21:08	3961	1298	2203	673	159	8293
21:09	3866	1237	2096	670	150	8019
21:10	3881	1259	2039	690	146	8016
21:11	4390	1437	2093	729	169	8817
21:12	5440	1926	2165	874	260	10664
21:13	6406	2465	2363	1039	369	12641
21:14	7016	2488	2433	1361	451	13750
21:15	7324	2570	2564	1607	455	14520
21:16	7410	2636	2720	1796	475	15037
21:17	7343	2791	2875	2012	527	15548
21:18	7570	2870	3120	2208	618	16385
21:19	7940	2955	3018	2286	638	16837
21:20	8325	2941	3092	2636	632	17625
21:21	8385	2902	3186	2878	634	17985
21:22	8530	2892	3230	2872	614	18138



### Hydro Generation (MW) - 5 Apr 2020

Time	NR	WR	SR	ER	NER	All India
21:23	8631	2918	3378	2753	617	18298
21:24	8702	2922	3397	2716	620	18357
21:25	8944	2931	3393	2725	618	18612
21:26	9099	2930	3446	2715	605	18796
21:27	9278	2934	3457	2741	603	19012
21:28	9165	2941	3486	2768	598	18958
21:29	9145	2949	3464	2815	597	18970
21:30	8997	2961	3469	2905	591	18923
21:31	8866	2955	3429	2926	590	18766
21:32	8889	2820	3475	2910	592	18687
21:33	8980	2830	3387	2946	593	18736
21:34	9143	2835	3371	2965	588	18902
21:35	9203	2872	3231	2979	574	18860
21:36	9270	2878	3219	2997	575	18939
21:37	9429	2889	3240	2874	576	19007
21:38	9527	2884	3145	2813	558	18928
21:39	9539	2886	3147	2730	549	18851
21:40	9531	2882	3155	2723	548	18839
21:41	9569	2879	3154	2717	549	18868
21:42	9504	2872	3146	2713	549	18784
21:43	9460	2868	3140	2704	553	18724
21:44	9380	2859	3138	2700	550	18626
21:45	9211	2873	3165	2708	549	18506
21:46	9152	2827	3171	2773	527	18449
21:47	9092	2728	3182	2620	454	18076
21:48	9217	2737	3174	2614	441	18184
21:49	9198	2740	3164	2560	423	18084
21:50	9059	2724	3145	2545	423	17896
21:51	8954	2713	3142	2358	405	17572
21:52	8875	2706	3146	2329	401	17457
21:53	8905	2710	3197	2305	407	17524
21:54	8829	2531	3220	2322	406	17309
21:55	8762	2518	3232	2299	410	17221
21:56	8732	2528	3277	2314	412	17263
21:57	8755	2532	3290	2293	414	17284
21:58	8707	2527	3284	2269	413	17200
21:59	8695	2527	3201	2258	413	17094
22:00	8709	2376	3185	2182	412	16863
<b>Maximum Hydro (MW)</b>	<b>12619</b>	<b>3243</b>	<b>5841</b>	<b>4333</b>	<b>673</b>	<b>25676</b>
<b>Time</b>	<b>20:35</b>	<b>20:52</b>	<b>20:48</b>	<b>20:30</b>	<b>20:53</b>	<b>20:46</b>
<b>Minimum Hydro (MW)</b>	<b>3866</b>	<b>1237</b>	<b>2039</b>	<b>670</b>	<b>146</b>	<b>8016</b>
<b>Time</b>	<b>21:09</b>	<b>21:09</b>	<b>21:10</b>	<b>21:09</b>	<b>21:10</b>	<b>21:10</b>
<b>Max-Min (MW)</b>	<b>8752</b>	<b>2006</b>	<b>3802</b>	<b>3663</b>	<b>527</b>	<b>17659</b>





### Gas Generation (MW) - 5 Apr 2020

Time	NR	WR	SR	ER	NER	All India
20:30	1159	4485	733		880	<b>7257</b>
20:31	1154	4458	682		869	<b>7163</b>
20:32	1154	4436	694		816	<b>7099</b>
20:33	1142	4430	682		798	<b>7052</b>
20:34	1141	4430	680		798	<b>7049</b>
20:35	1145	4438	657		796	<b>7037</b>
20:36	1144	4439	701		792	<b>7077</b>
20:37	1142	4446	709		793	<b>7091</b>
20:38	1142	4446	698		793	<b>7079</b>
20:39	1152	4456	690		792	<b>7090</b>
20:40	1171	4514	660		797	<b>7142</b>
20:41	1192	4526	652		794	<b>7164</b>
20:42	1210	4565	705		794	<b>7273</b>
20:43	1227	4558	697		795	<b>7276</b>
20:44	1244	4565	698		795	<b>7302</b>
20:45	1292	4543	674		796	<b>7305</b>
20:46	1309	4538	698		788	<b>7333</b>
20:47	1401	4540	701		752	<b>7395</b>
20:48	1410	4525	709		753	<b>7397</b>
20:49	1468	4506	709		754	<b>7436</b>
20:50	1470	4498	704		747	<b>7419</b>
20:51	1526	4516	713		741	<b>7495</b>
20:52	1526	4525	694		739	<b>7484</b>
20:53	1552	4547	691		723	<b>7512</b>
20:54	1551	4491	688		682	<b>7412</b>
20:55	1554	4409	686		687	<b>7336</b>
20:56	1704	4316	682		683	<b>7385</b>
20:57	1713	4223	682		673	<b>7291</b>
20:58	1773	4115	690		664	<b>7241</b>
20:59	1767	3961	675		657	<b>7060</b>
21:00	1733	3809	665		659	<b>6865</b>
21:01	1622	3578	675		651	<b>6526</b>
21:02	1579	3398	656		626	<b>6259</b>
21:03	1439	3273	643		619	<b>5974</b>
21:04	1420	3208	637		602	<b>5867</b>
21:05	1353	3137	644		596	<b>5730</b>
21:06	1338	3037	642		596	<b>5613</b>
21:07	1277	2992	642		597	<b>5508</b>
21:08	1259	2930	639		595	<b>5423</b>
21:09	1213	2921	641		598	<b>5372</b>
21:10	1210	2909	638		598	<b>5355</b>
21:11	1224	2936	643		631	<b>5433</b>
21:12	1241	3028	646		650	<b>5565</b>
21:13	1281	3149	673		689	<b>5791</b>
21:14	1315	3289	678		714	<b>5996</b>
21:15	1366	3386	697		750	<b>6199</b>
21:16	1389	3446	708		759	<b>6301</b>
21:17	1442	3557	711		763	<b>6472</b>
21:18	1460	3639	698		803	<b>6599</b>
21:19	1523	3653	701		811	<b>6688</b>
21:20	1541	3699	673		822	<b>6734</b>
21:21	1637	3729	664		839	<b>6868</b>
21:22	1643	3737	687		842	<b>6909</b>



### Gas Generation (MW) - 5 Apr 2020

Time	NR	WR	SR	ER	NER	All India
21:23	1715	3766	671		844	6997
21:24	1720	3770	668		837	6995
21:25	1742	3803	662		838	7045
21:26	1742	3831	653		841	7067
21:27	1769	3857	661		842	7129
21:28	1777	3867	677		843	7164
21:29	1790	3868	660		844	7163
21:30	1792	3865	667		851	7175
21:31	1778	3847	668		858	7151
21:32	1749	3850	662		869	7130
21:33	1664	3849	675		882	7070
21:34	1648	3857	671		892	7069
21:35	1619	3851	670		899	7038
21:36	1552	3867	666		902	6987
21:37	1507	3883	664		906	6960
21:38	1496	3886	673		914	6970
21:39	1486	3911	676		916	6989
21:40	1429	3913	675		915	6931
21:41	1373	3911	668		914	6867
21:42	1365	3914	665		915	6859
21:43	1359	3927	665		916	6868
21:44	1341	3932	666		916	6855
21:45	1328	3983	689		921	6921
21:46	1303	4000	690		939	6932
21:47	1275	4021	665		955	6915
21:48	1271	4043	665		963	6942
21:49	1266	4024	679		959	6928
21:50	1248	4006	667		960	6882
21:51	1241	4012	685		963	6901
21:52	1246	4021	668		965	6899
21:53	1244	4025	684		966	6919
21:54	1245	4032	681		967	6924
21:55	1246	4038	667		969	6920
21:56	1243	4047	666		969	6925
21:57	1244	4027	683		966	6920
21:58	1244	4029	688		966	6927
21:59	1244	4038	687		968	6937
22:00	1245	4055	683		989	6973
<b>Maximum Gas Gen (MW)</b>	<b>1792</b>	<b>4565</b>	<b>733</b>		<b>989</b>	<b>7512</b>
<b>Time</b>	<b>21:30</b>	<b>20:44</b>	<b>20:30</b>		<b>22:00</b>	<b>20:53</b>
<b>Minimum Gas Gen (MW)</b>	<b>1141</b>	<b>2909</b>	<b>637</b>		<b>595</b>	<b>5355</b>
<b>Time</b>	<b>20:34</b>	<b>21:10</b>	<b>21:04</b>		<b>21:08</b>	<b>21:10</b>
<b>Max-Min (MW)</b>	<b>651</b>	<b>1656</b>	<b>96</b>		<b>395</b>	<b>2157</b>



### Thermal Generation (MW) - 5 Apr 2020

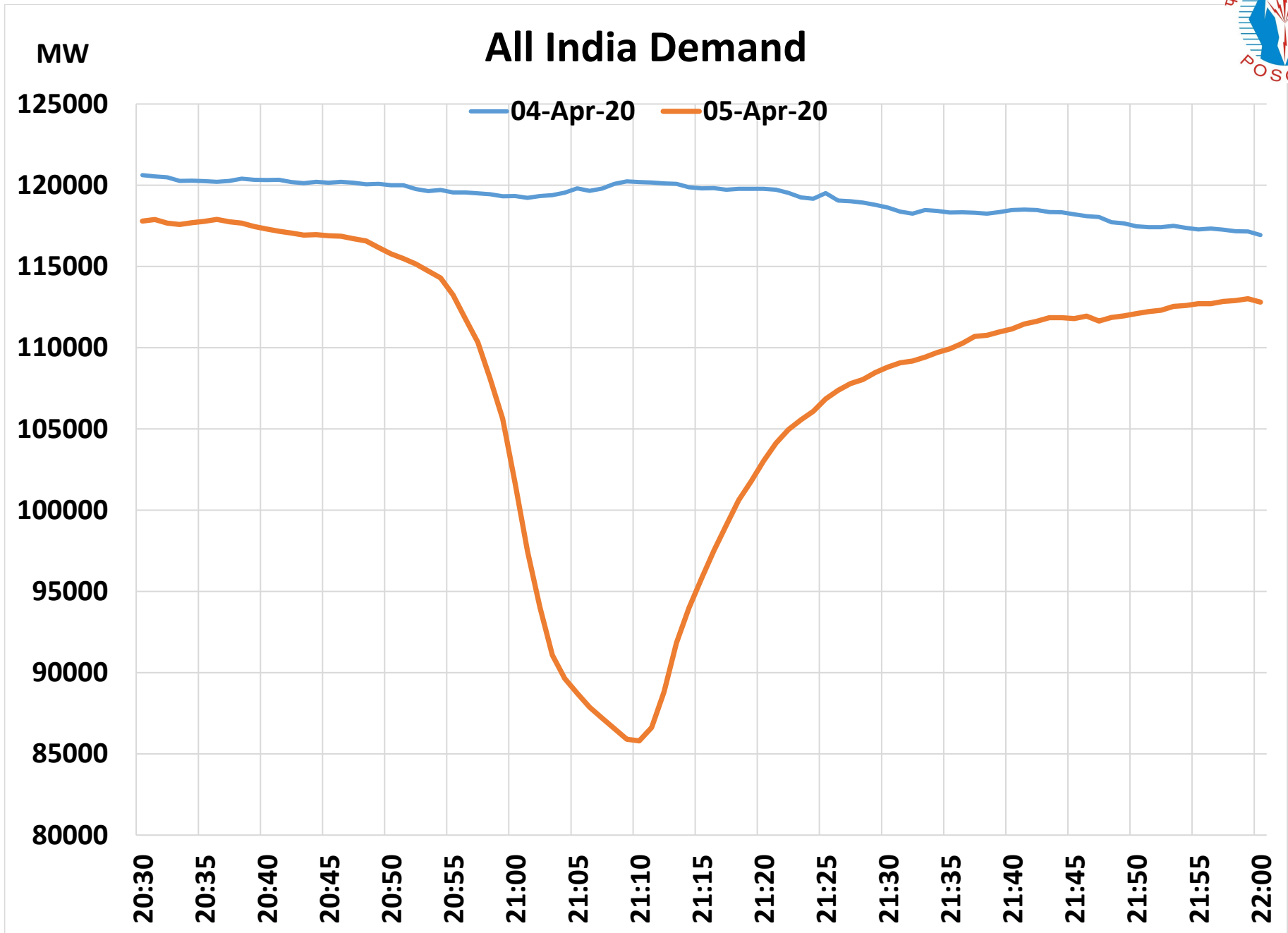
Time	NR	WR	SR	ER	NER	All India
20:30	13319	31050	17897	14955	388	77609
20:31	13265	30887	17899	14884	389	77324
20:32	13225	30790	17884	14823	389	77110
20:33	13106	30729	17906	14856	386	76983
20:34	13026	30741	17896	14804	386	76855
20:35	13001	30701	17860	14786	387	76735
20:36	12991	30642	17818	14771	388	76609
20:37	12950	30608	17804	14781	386	76530
20:38	12908	30555	17782	14773	384	76403
20:39	12895	30516	17744	14742	384	76280
20:40	12880	30409	17702	14691	385	76067
20:41	12866	30315	17677	14651	383	75892
20:42	12846	30251	17651	14615	384	75748
20:43	12775	30216	17667	14548	385	75591
20:44	12883	30105	17655	14487	386	75515
20:45	12903	29915	17622	14444	393	75277
20:46	12955	29776	17567	14432	391	75121
20:47	13020	29662	17526	14340	393	74941
20:48	13116	29578	17529	14299	395	74918
20:49	13148	29457	17518	14276	398	74797
20:50	13171	29401	17521	14225	397	74716
20:51	13184	29326	17496	14208	402	74616
20:52	13208	29235	17484	14165	407	74498
20:53	13193	29104	17438	14121	414	74270
20:54	13232	29030	17406	14061	415	74145
20:55	13202	28959	17459	13996	420	74037
20:56	13194	28832	17431	13931	423	73811
20:57	13170	28760	17365	13881	424	73600
20:58	13143	28598	17328	13823	420	73311
20:59	12953	28358	17212	13804	413	72740
21:00	12715	28167	17131	13748	410	72170
21:01	12589	27534	16778	13750	408	71060
21:02	12406	27328	16594	13609	394	70331
21:03	12246	27077	16532	13514	386	69756
21:04	11982	26771	16527	13514	385	69179
21:05	11833	26580	16509	13506	384	68811
21:06	11696	26380	16418	13454	377	68325
21:07	11606	26287	16384	13462	380	68119
21:08	11579	26164	16324	13499	377	67942
21:09	11580	26118	16304	13581	370	67952
21:10	11536	26122	16343	13672	365	68037
21:11	11259	26276	16429	13752	363	68079
21:12	11354	26401	16475	13829	366	68425
21:13	11456	26653	16550	13982	361	69001
21:14	11483	27023	16634	14122	376	69638
21:15	11483	27262	16731	14192	384	70052
21:16	11530	27490	16818	14333	392	70564
21:17	11609	27784	16952	14464	398	71207
21:18	11633	27928	17101	14602	406	71670
21:19	11702	28141	17191	14715	416	72165
21:20	11718	28313	17264	14735	429	72460
21:21	11870	28485	17396	14797	436	72985
21:22	11911	28626	17515	14853	447	73353

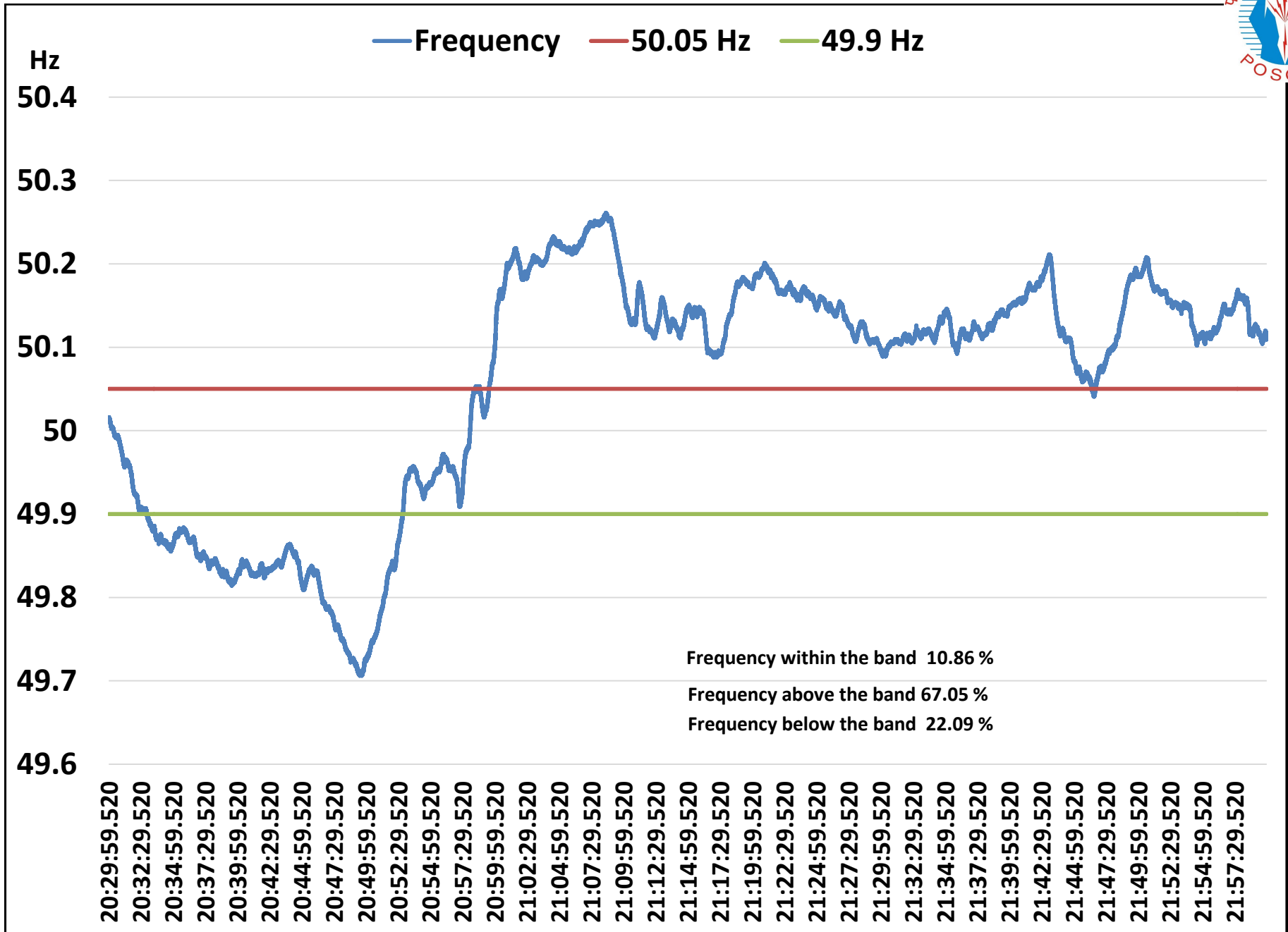




### Thermal Generation (MW) - 5 Apr 2020

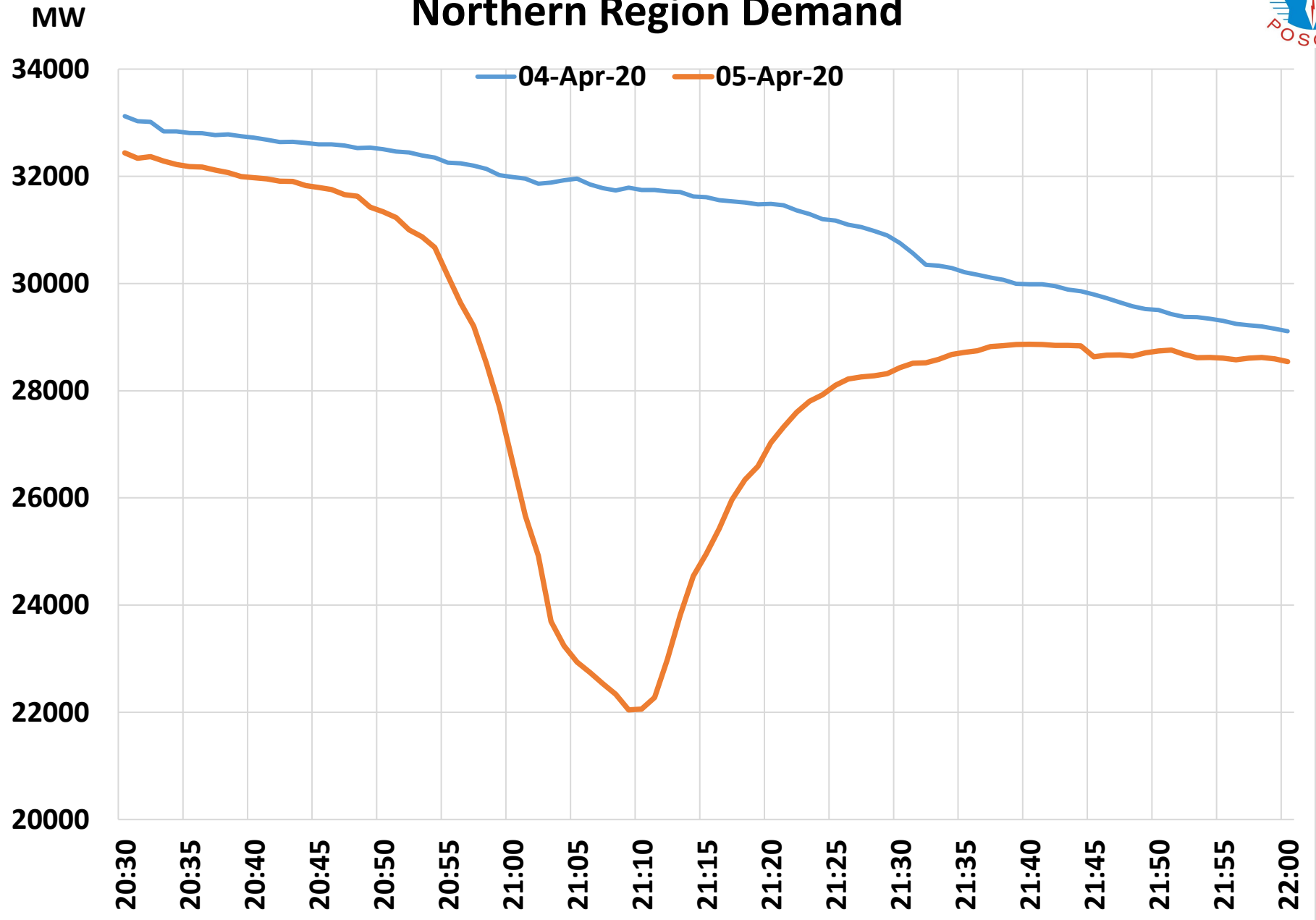
Time	NR	WR	SR	ER	NER	All India
21:23	11974	28794	17574	14954	451	73746
21:24	11962	28981	17607	15051	461	74062
21:25	11992	29115	17662	15114	466	74348
21:26	11986	29203	17705	15201	474	74568
21:27	11935	29326	17731	15257	474	74723
21:28	11874	29389	17778	15362	472	74874
21:29	11854	29446	17994	15483	460	75235
21:30	11991	29523	18148	15553	446	75661
21:31	12110	29596	18284	15601	447	76037
21:32	12142	29689	18340	15674	441	76286
21:33	12139	29795	18365	15767	438	76504
21:34	12139	29823	18428	15797	430	76617
21:35	12130	29892	18511	15900	430	76863
21:36	12122	29953	18580	15931	419	77006
21:37	12164	30021	18682	15983	412	77262
21:38	12202	30044	18730	16042	405	77423
21:39	12164	30076	18778	16089	405	77512
21:40	12231	30155	18796	16122	404	77709
21:41	12272	30263	18870	16224	410	78039
21:42	12294	30379	18899	16265	414	78251
21:43	12346	30541	18934	16302	419	78542
21:44	12419	30637	18966	16313	427	78763
21:45	12496	30787	18995	16409	435	79121
21:46	12579	30895	19033	16523	443	79473
21:47	12628	31014	19029	16580	449	79700
21:48	12753	31076	19043	16574	453	79899
21:49	12852	31067	19124	16591	454	80089
21:50	12884	31131	19123	16587	457	80182
21:51	12920	31222	19185	16610	459	80395
21:52	12911	31331	19270	16686	466	80663
21:53	12930	31423	19384	16758	475	80969
21:54	12967	31505	19421	16740	480	81114
21:55	12999	31634	19449	16740	487	81308
21:56	13058	31693	19459	16720	492	81423
21:57	13093	31718	19486	16654	497	81449
21:58	13105	31732	19523	16601	502	81463
21:59	13121	31755	19551	16553	508	81489
22:00	13167	31825	19617	16506	515	81630
<b>Maximum Thermal (MW)</b>	<b>13319</b>	<b>31825</b>	<b>19617</b>	<b>16758</b>	<b>515</b>	<b>81630</b>
<b>Time</b>	<b>20:30</b>	<b>22:00</b>	<b>22:00</b>	<b>21:53</b>	<b>22:00</b>	<b>22:00</b>
<b>Minimum Thermal (MW)</b>	<b>11259</b>	<b>26118</b>	<b>16304</b>	<b>13454</b>	<b>361</b>	<b>67942</b>
<b>Time</b>	<b>21:11</b>	<b>21:09</b>	<b>21:09</b>	<b>21:06</b>	<b>21:13</b>	<b>21:08</b>
<b>Max-Min (MW)</b>	<b>2060</b>	<b>5708</b>	<b>3313</b>	<b>3303</b>	<b>154</b>	<b>13688</b>



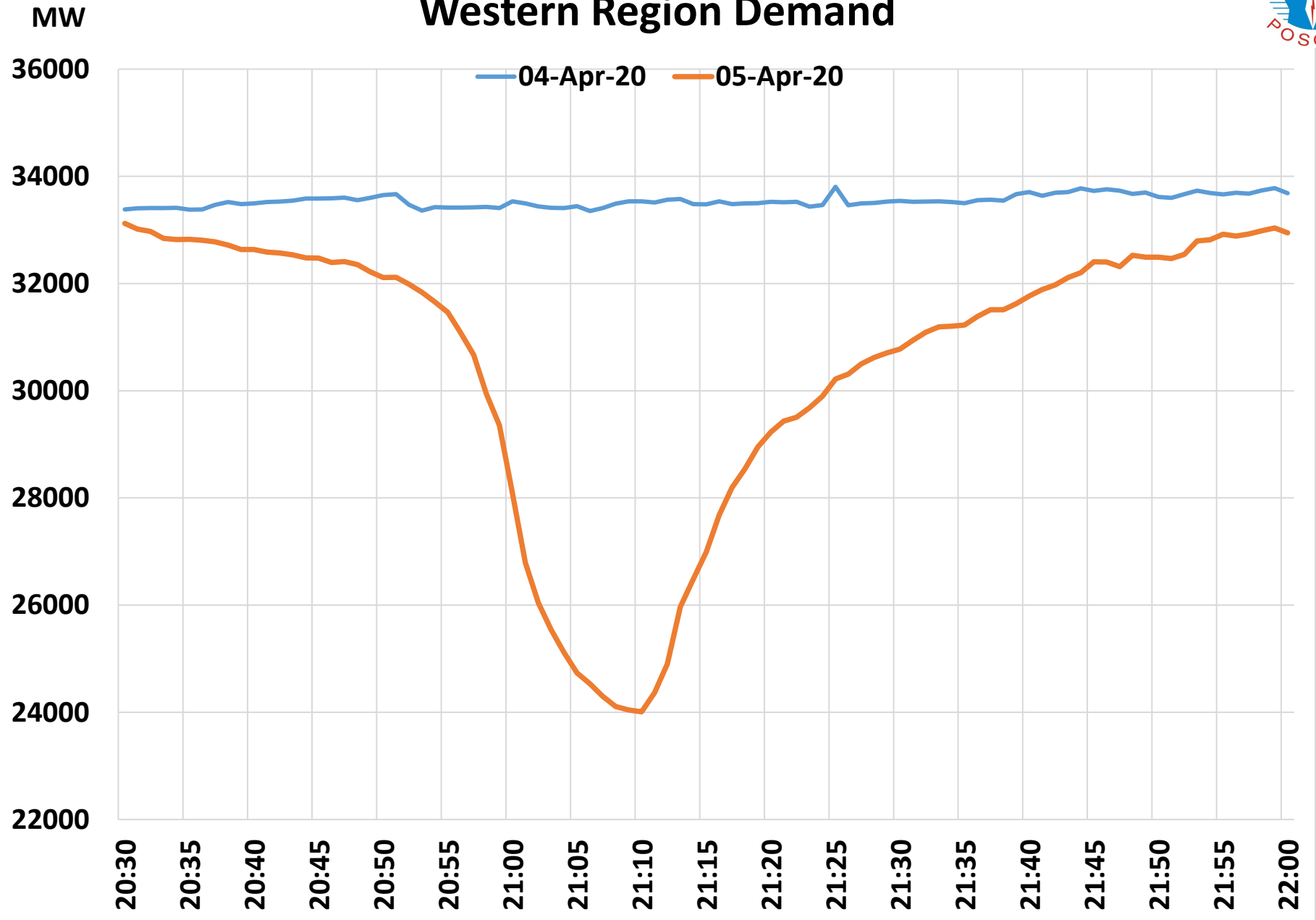




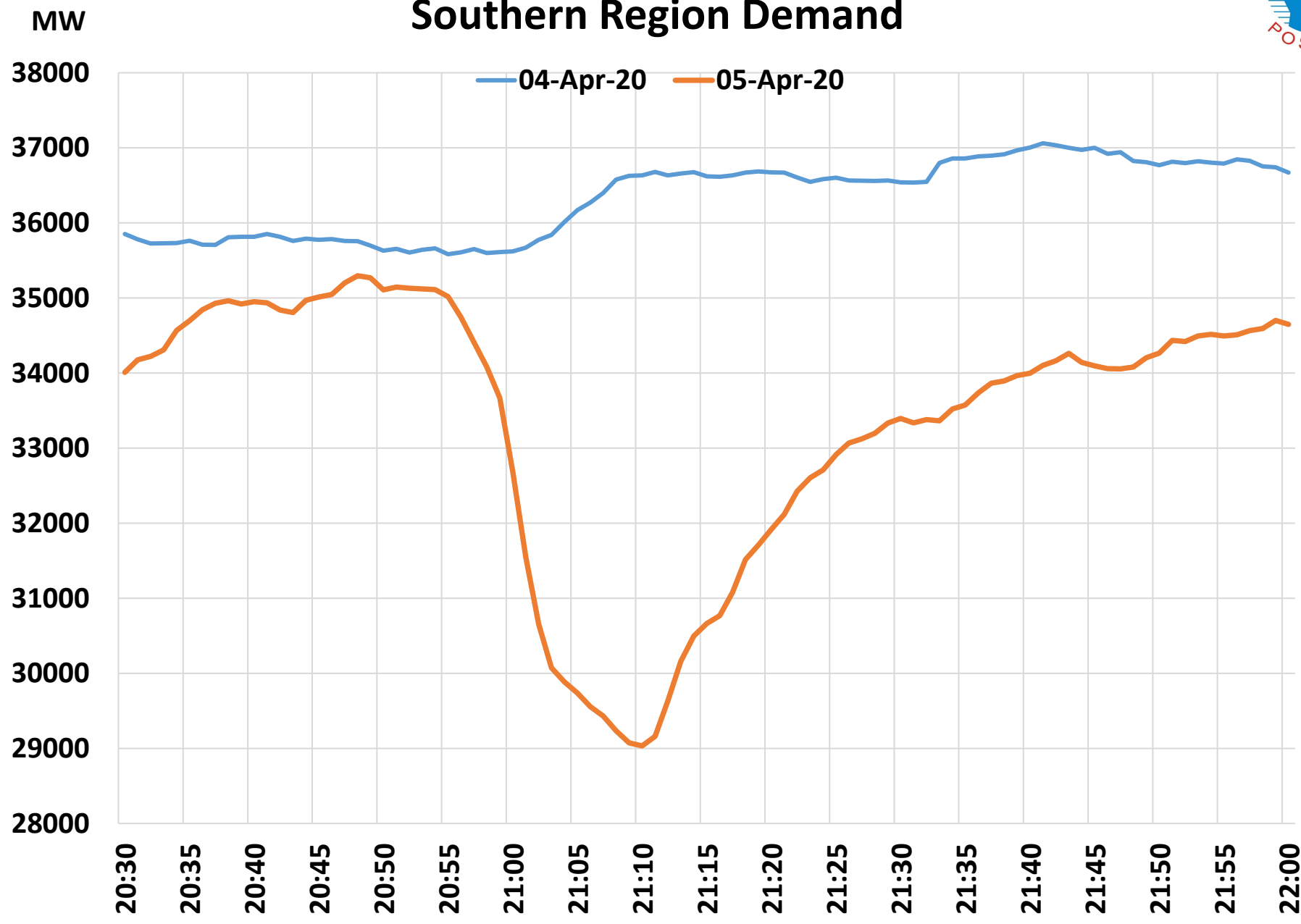
# Northern Region Demand



# Western Region Demand

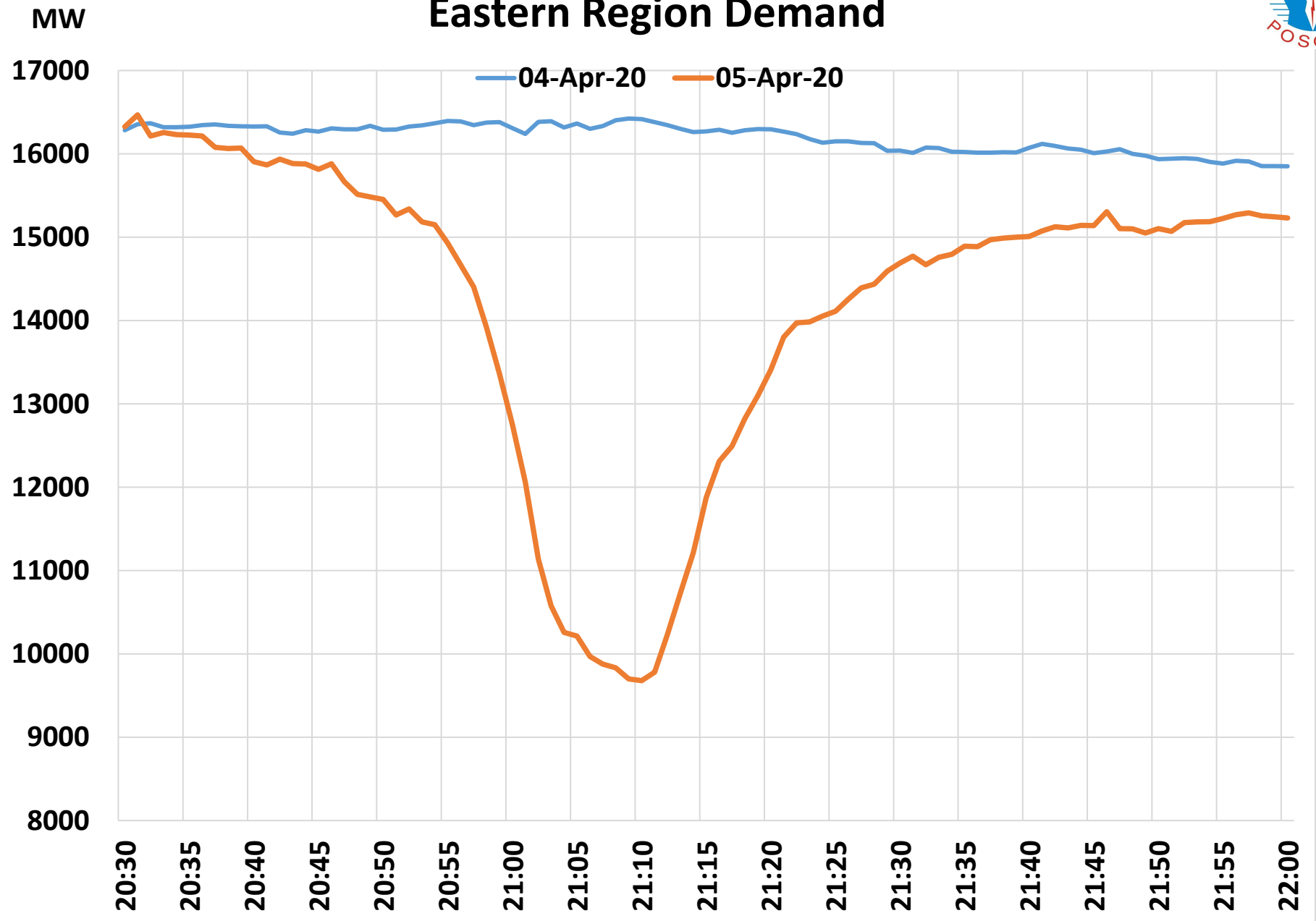


# Southern Region Demand

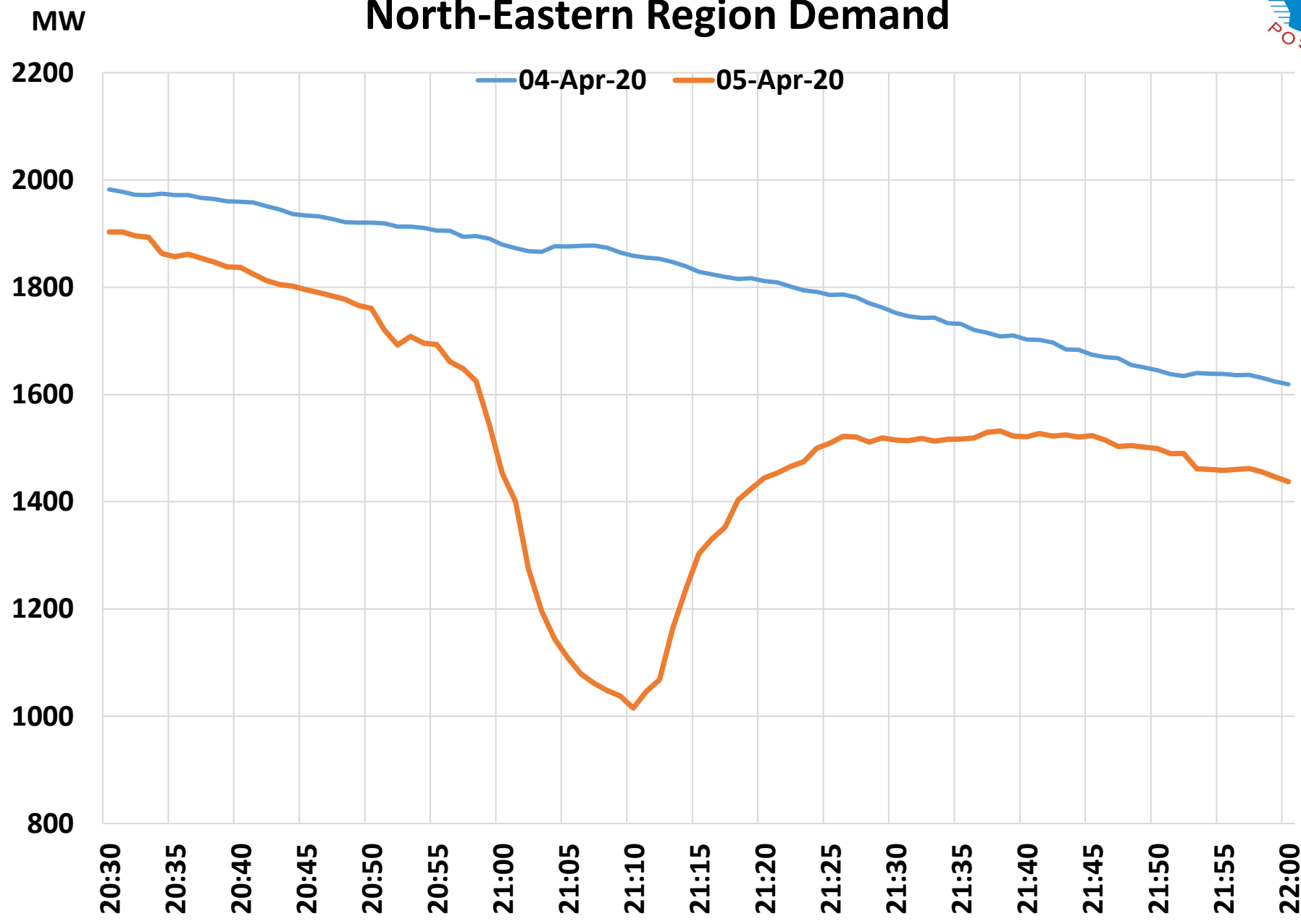




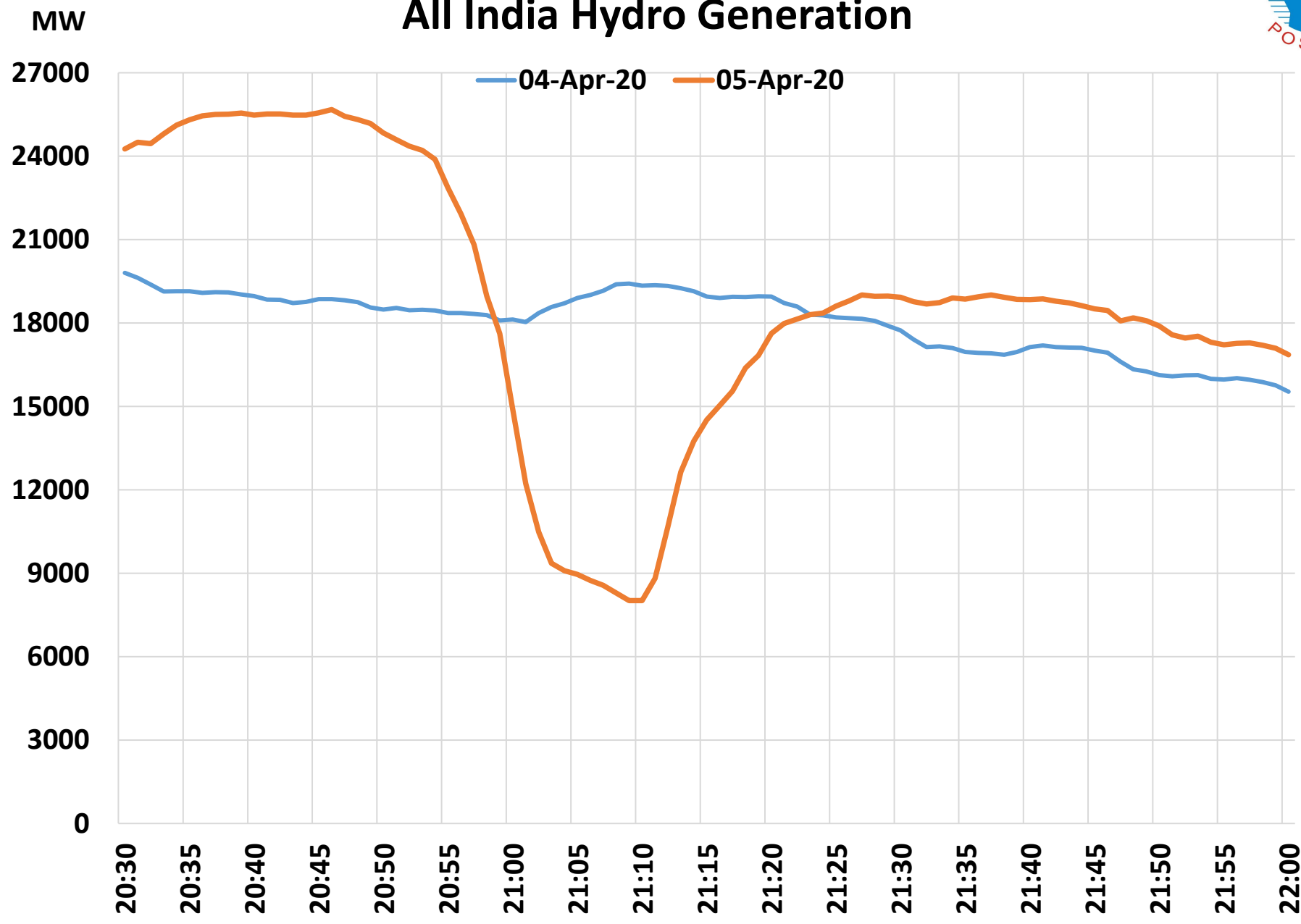
# Eastern Region Demand



# North-Eastern Region Demand

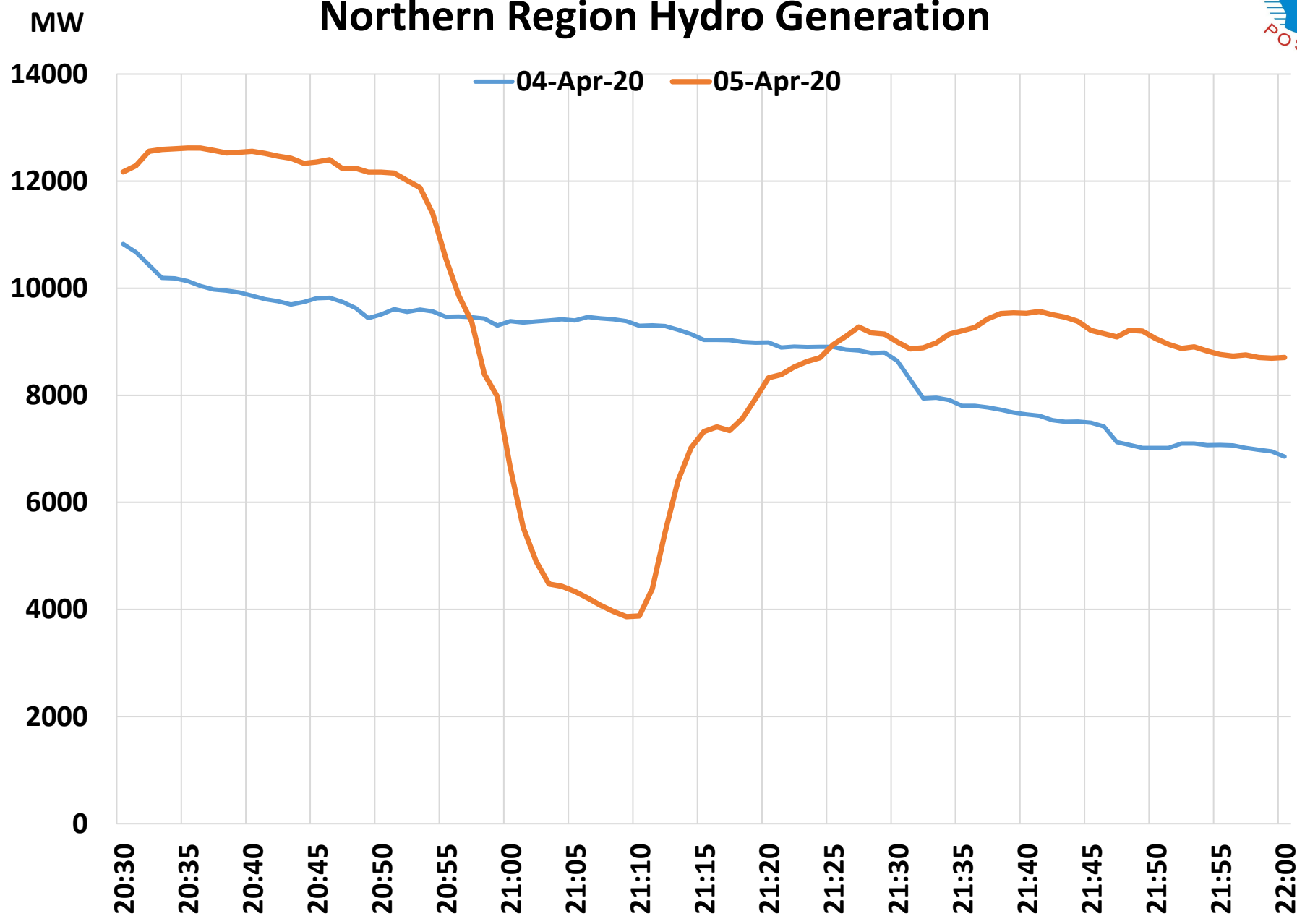


# All India Hydro Generation



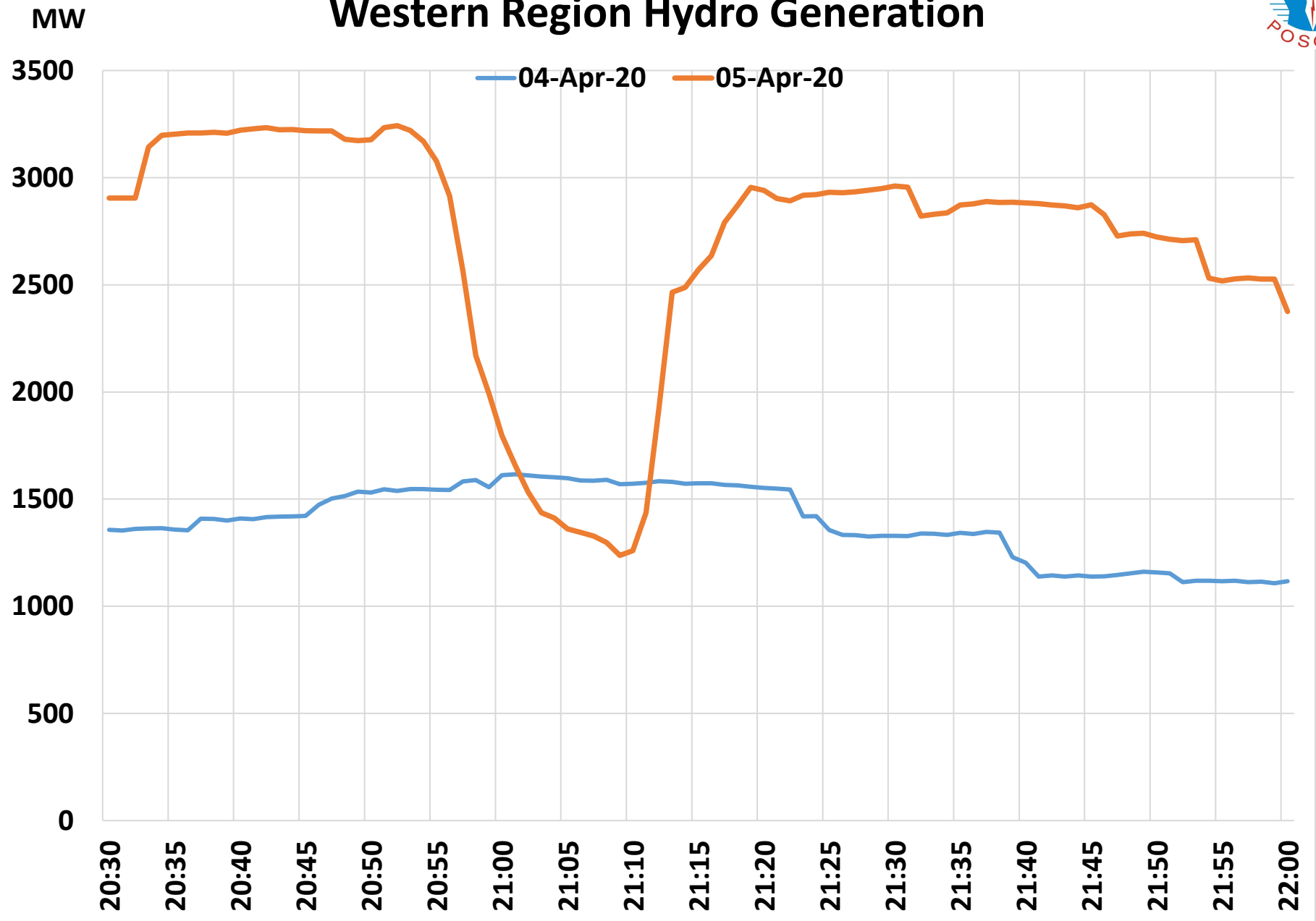


# Northern Region Hydro Generation

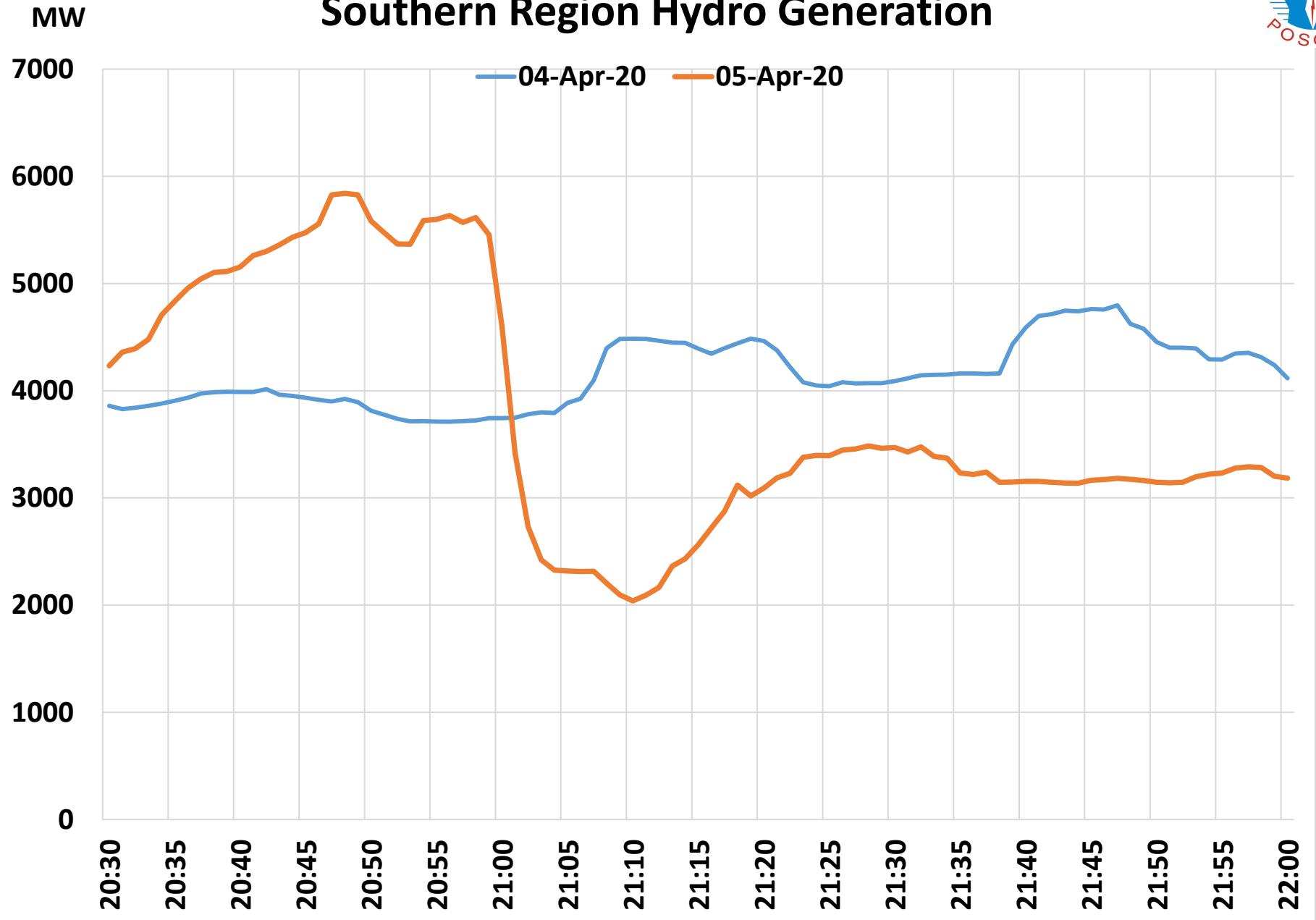




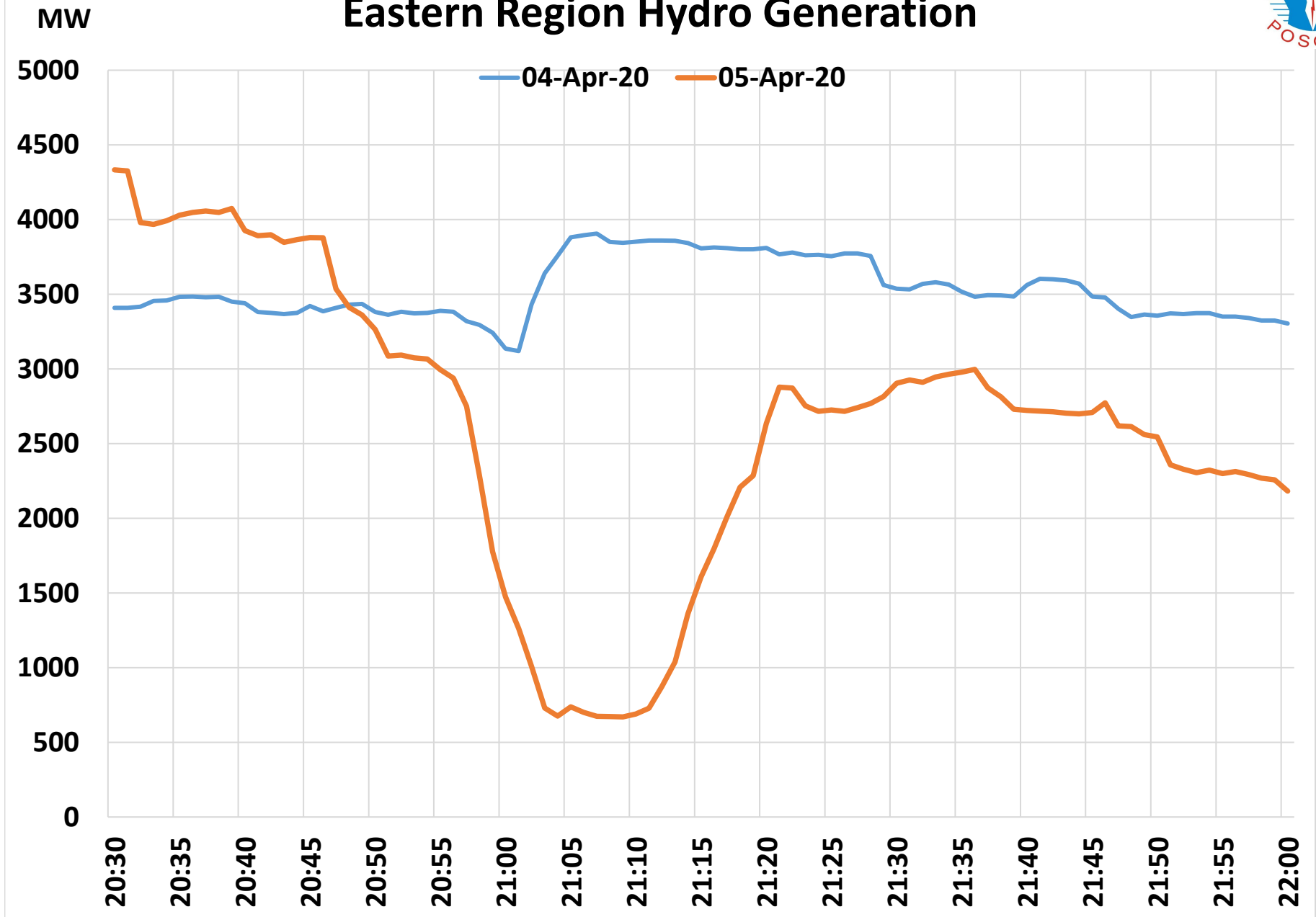
# Western Region Hydro Generation



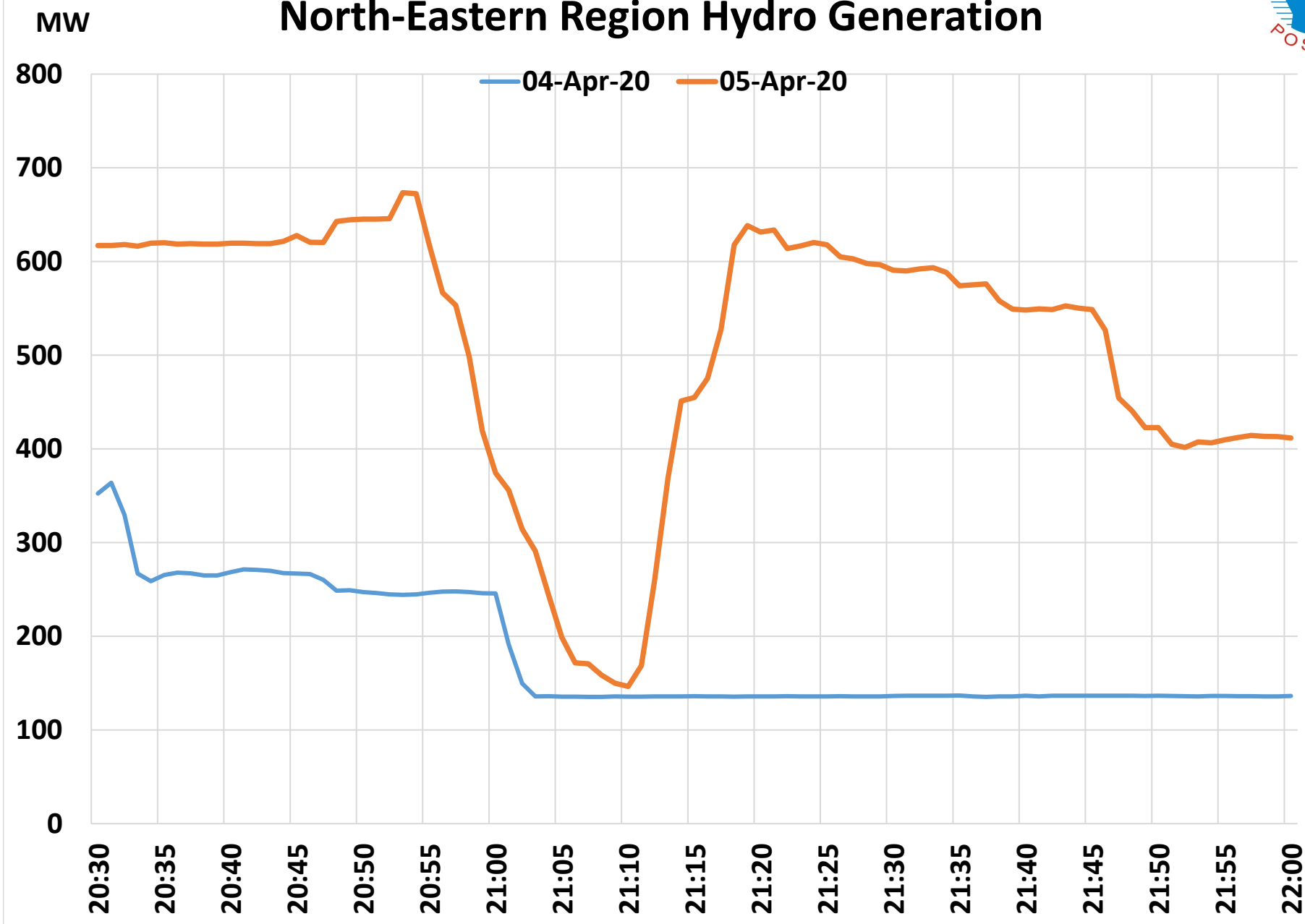
# Southern Region Hydro Generation



# Eastern Region Hydro Generation

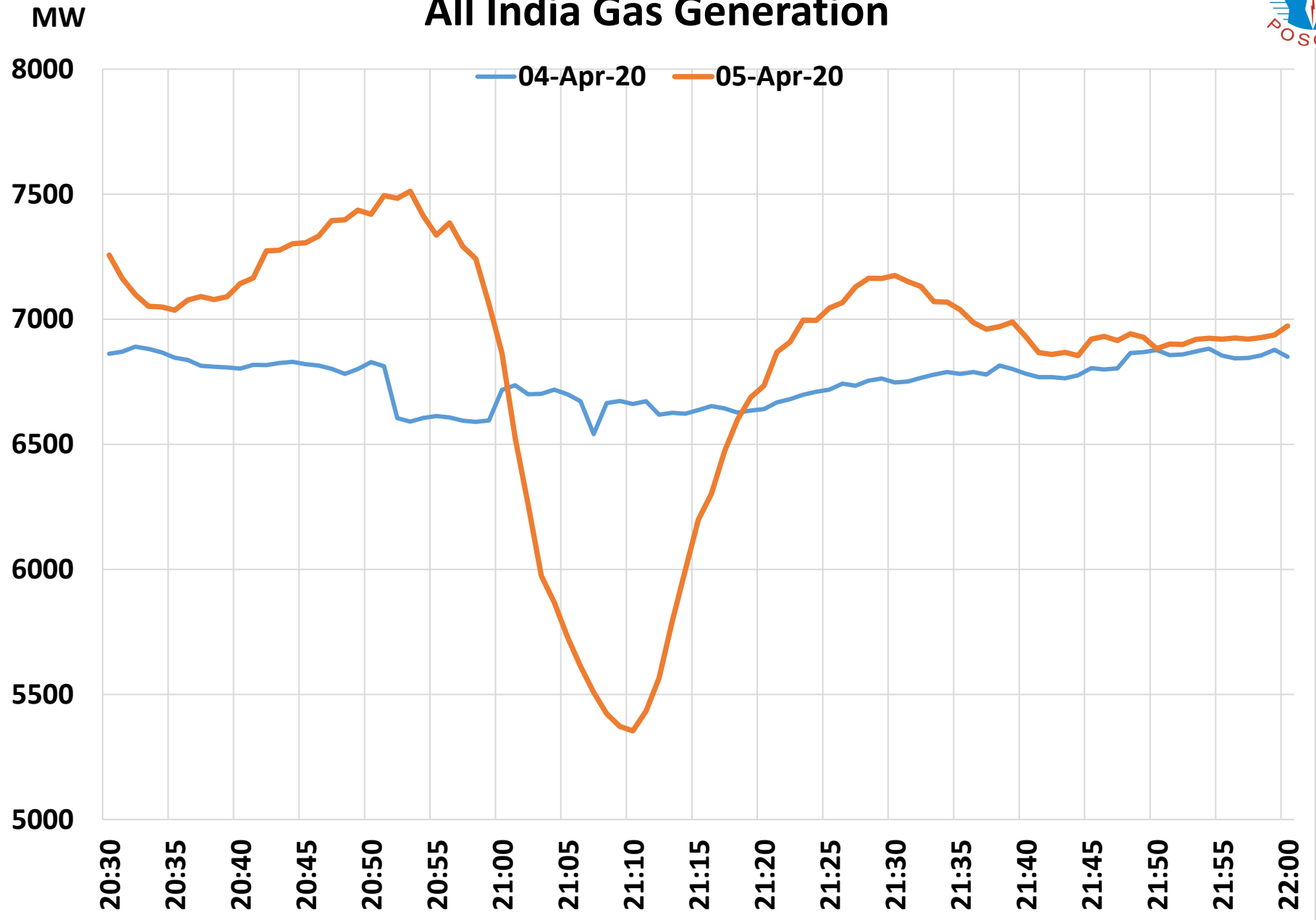


# North-Eastern Region Hydro Generation

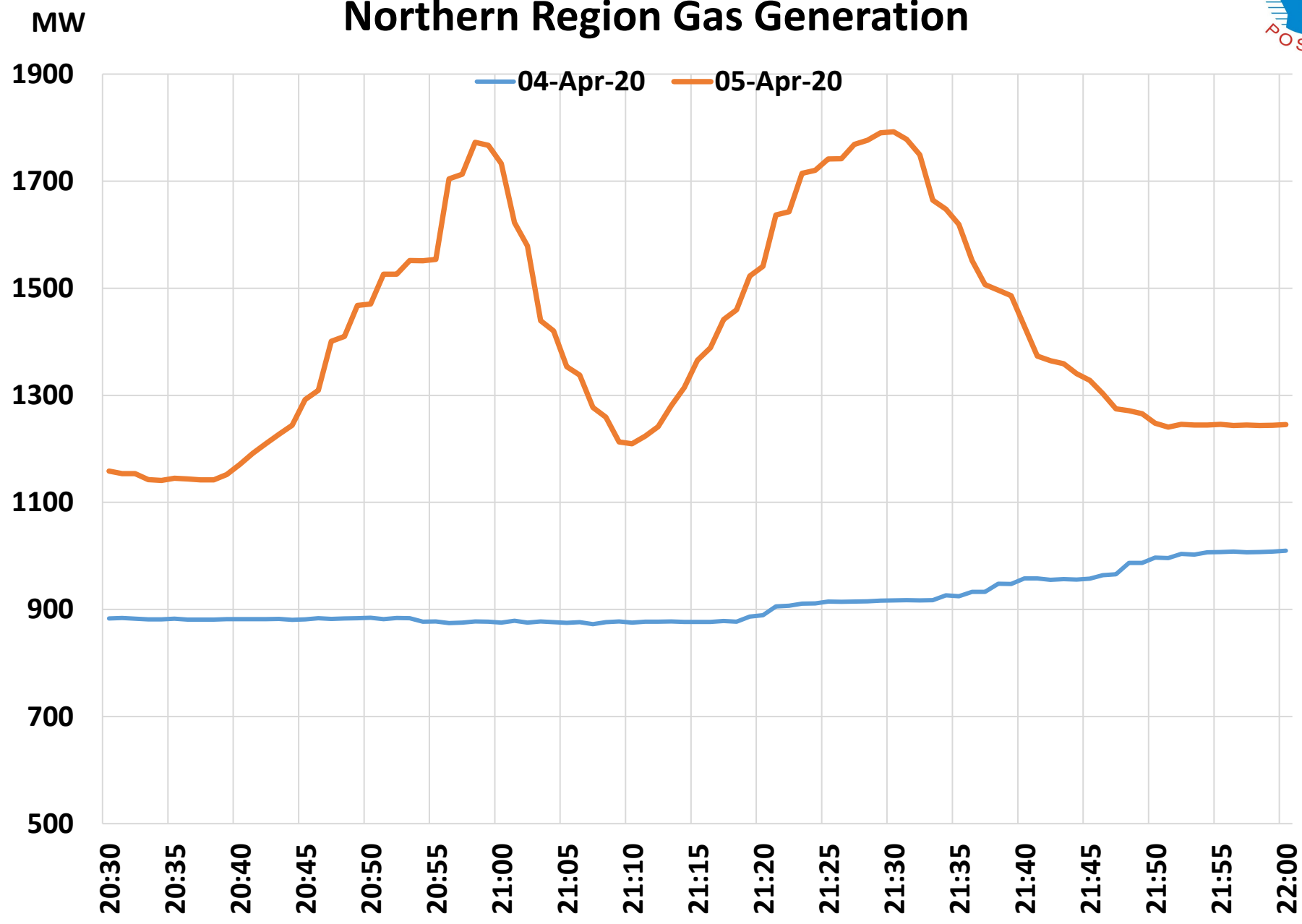




# All India Gas Generation

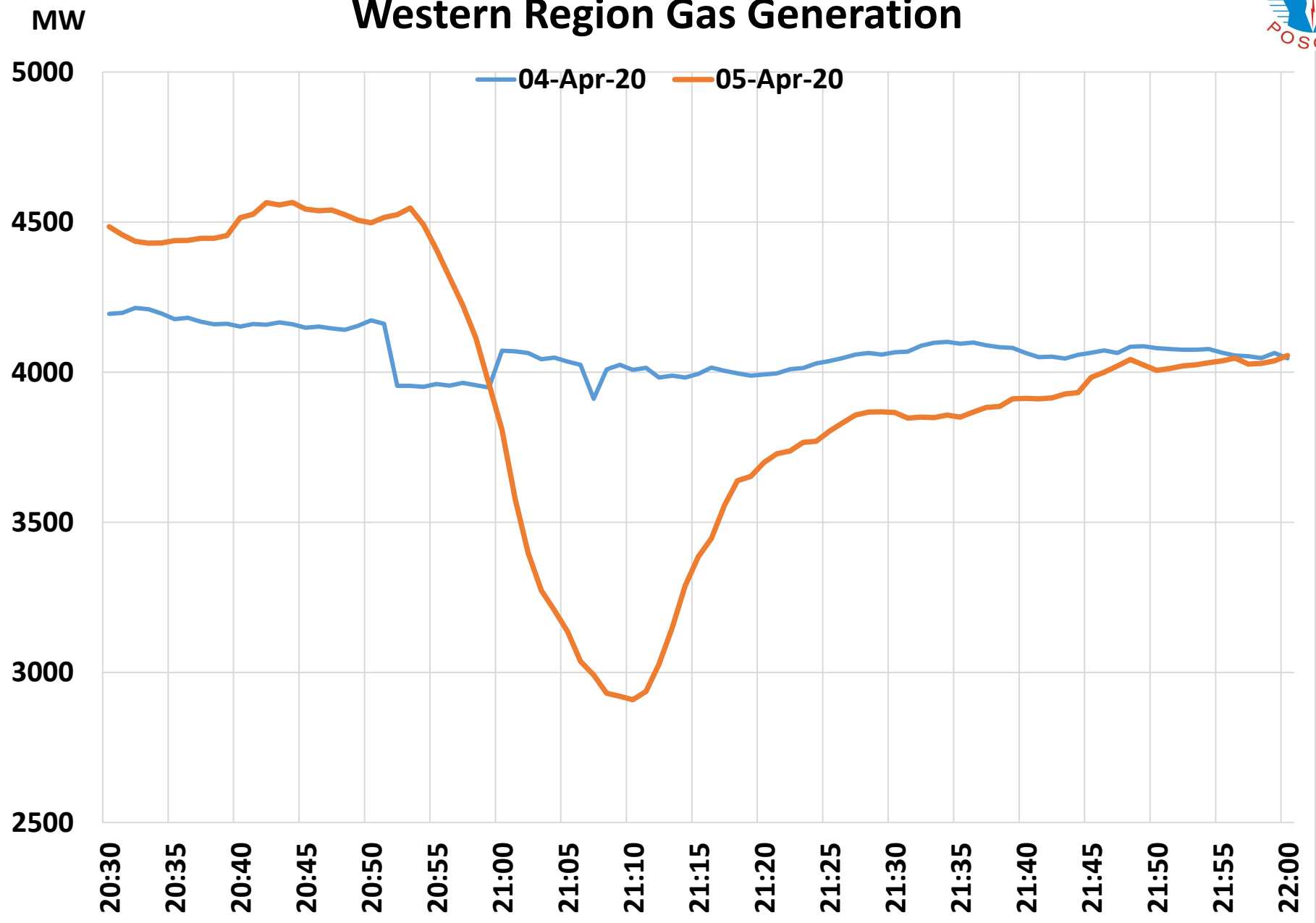


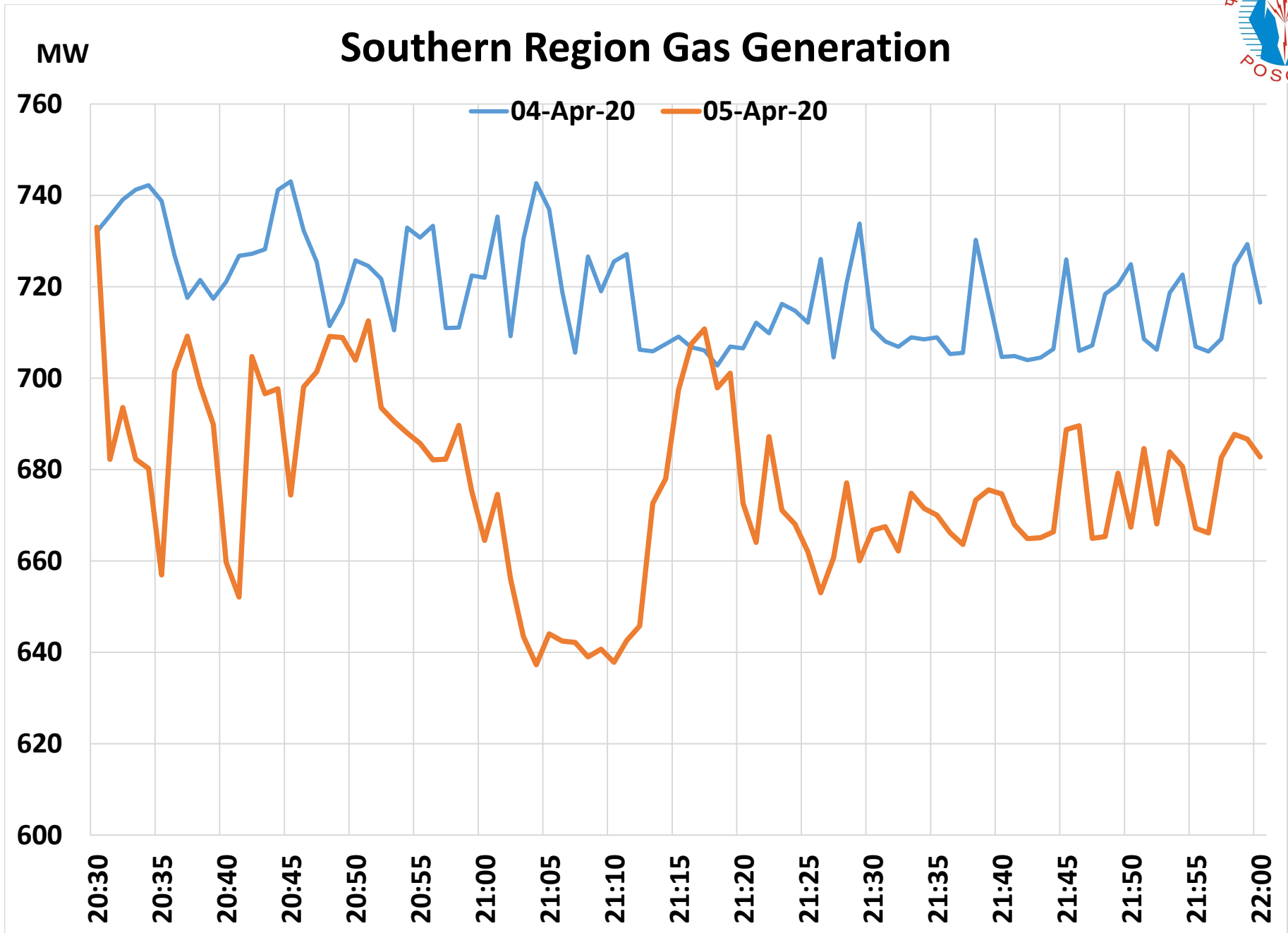
# Northern Region Gas Generation





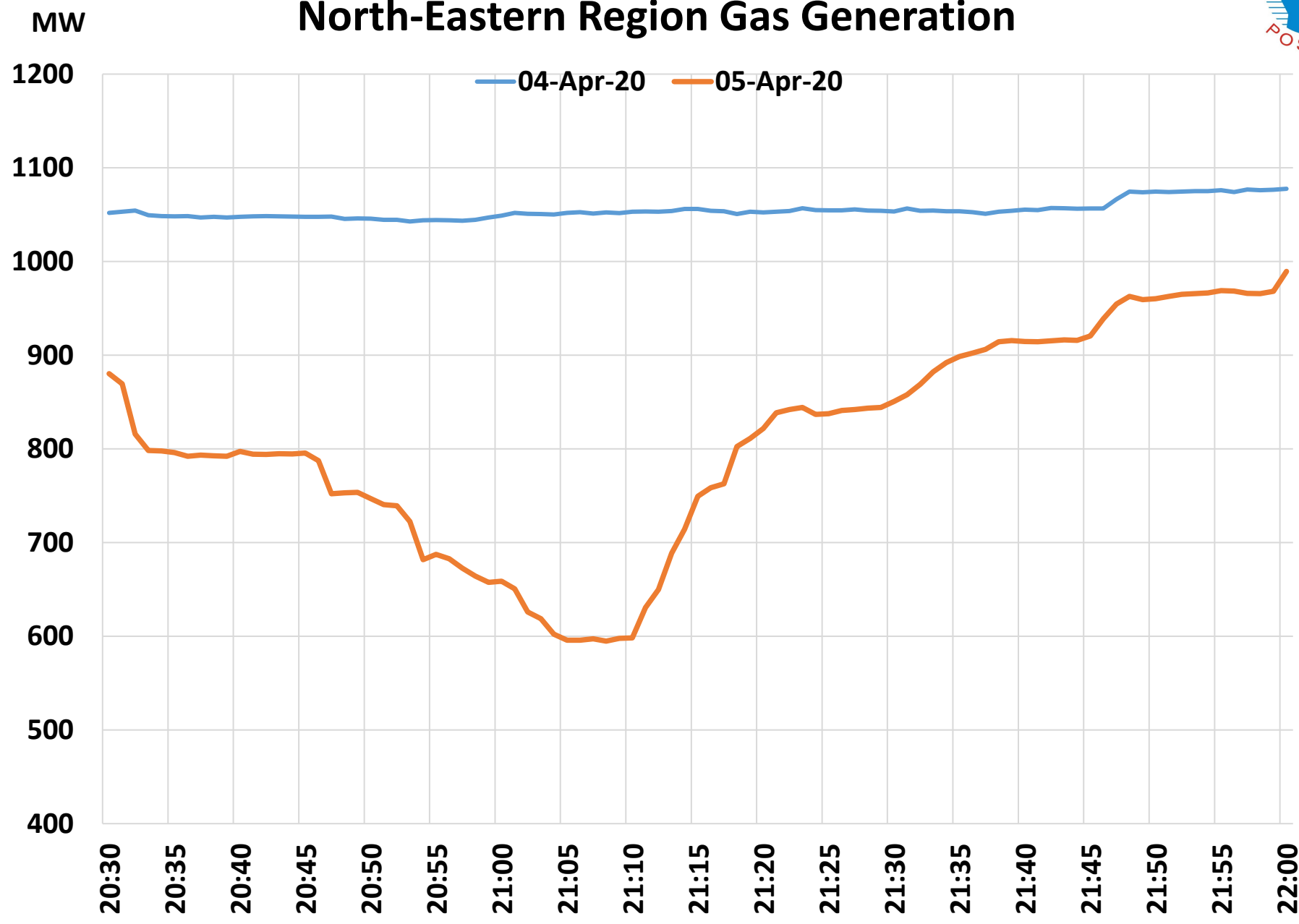
# Western Region Gas Generation





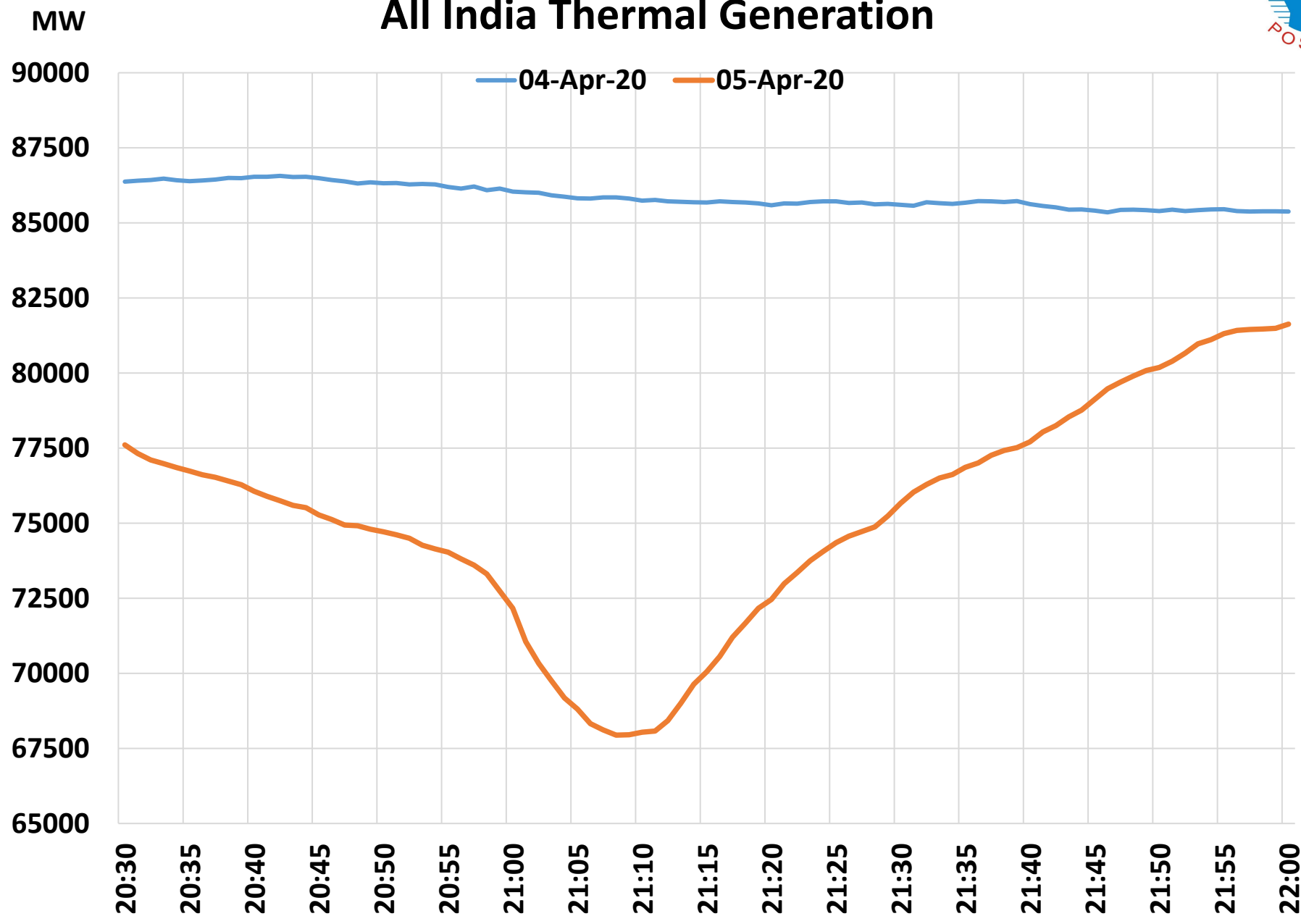


# North-Eastern Region Gas Generation



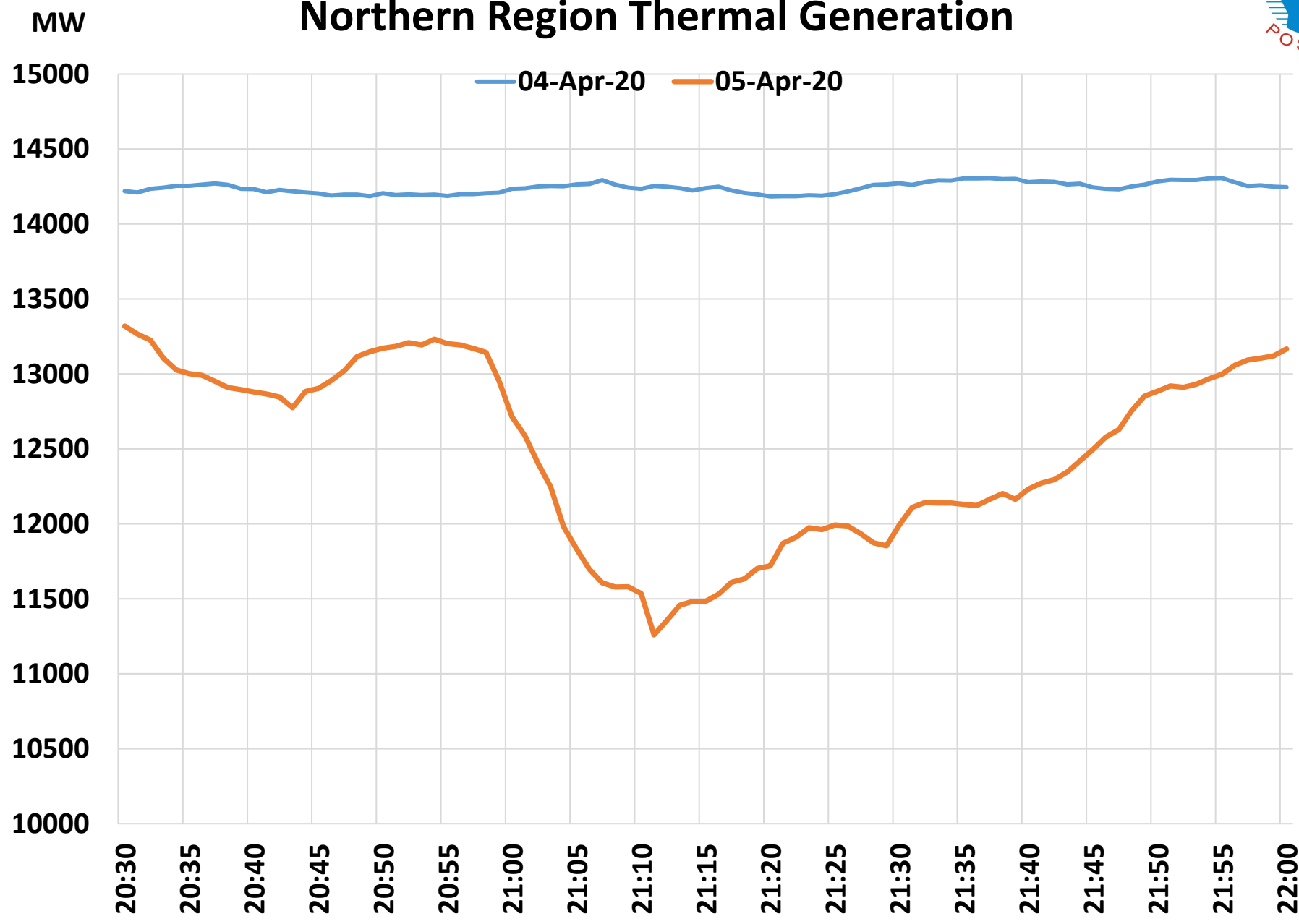


# All India Thermal Generation

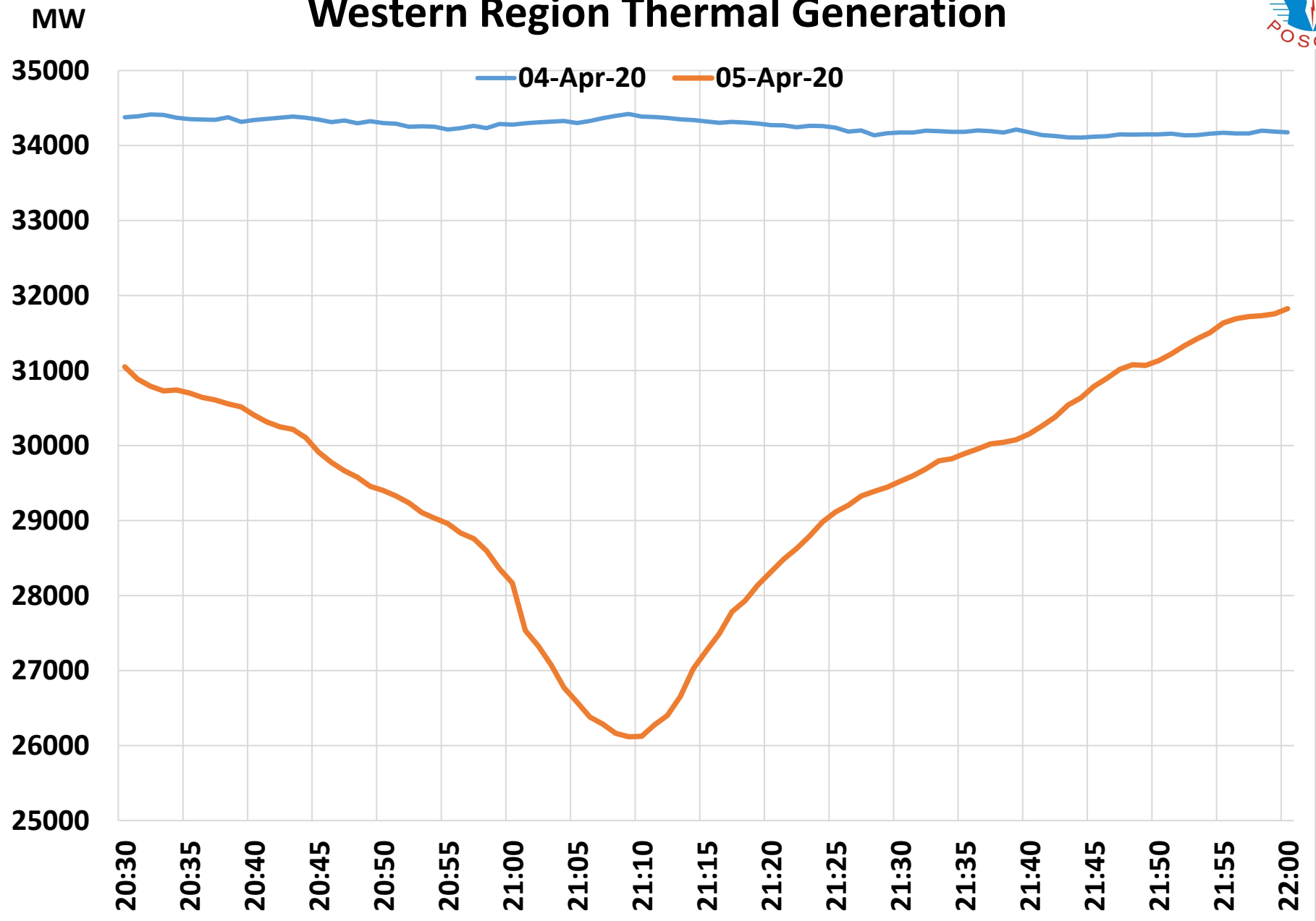




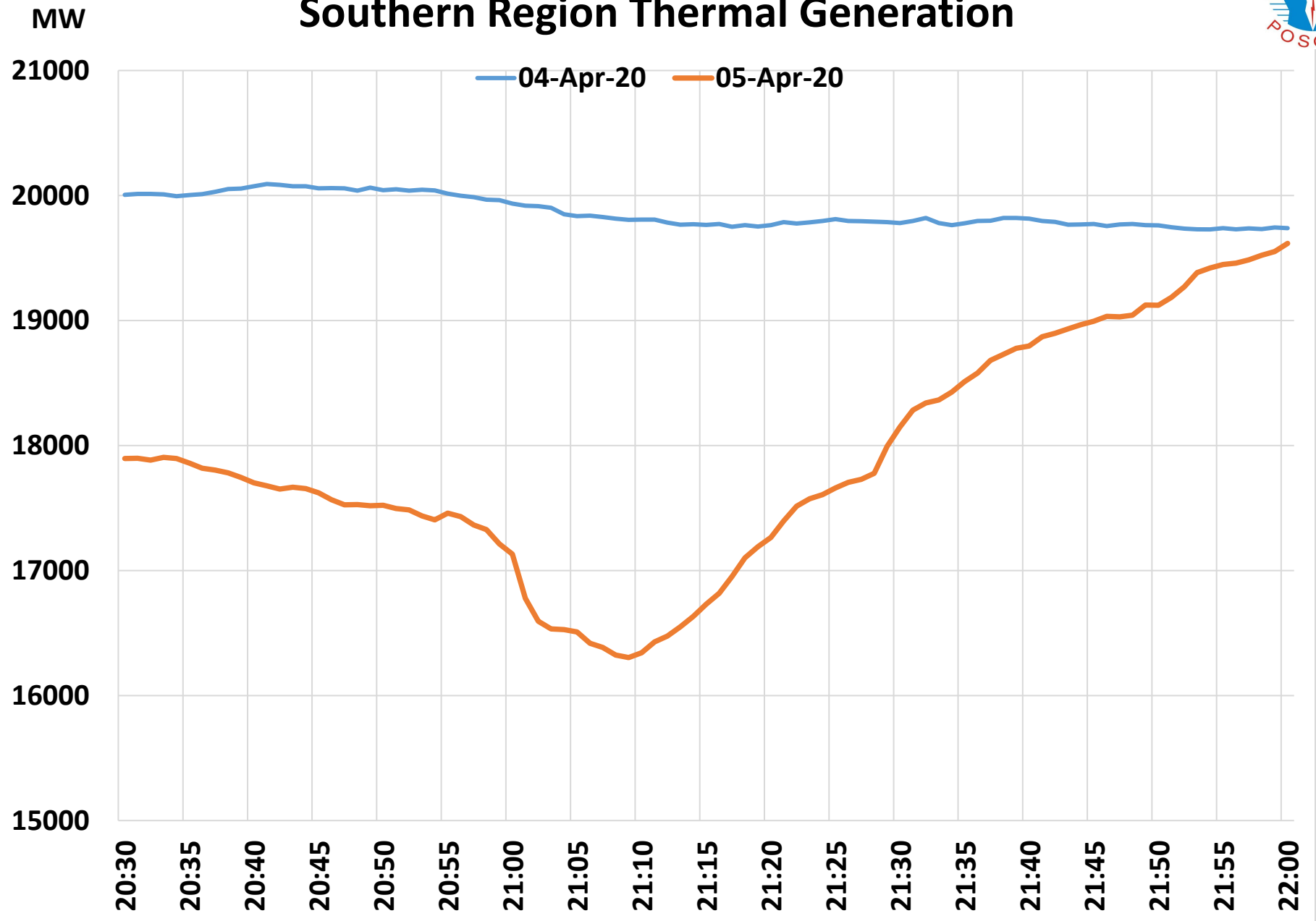
# Northern Region Thermal Generation



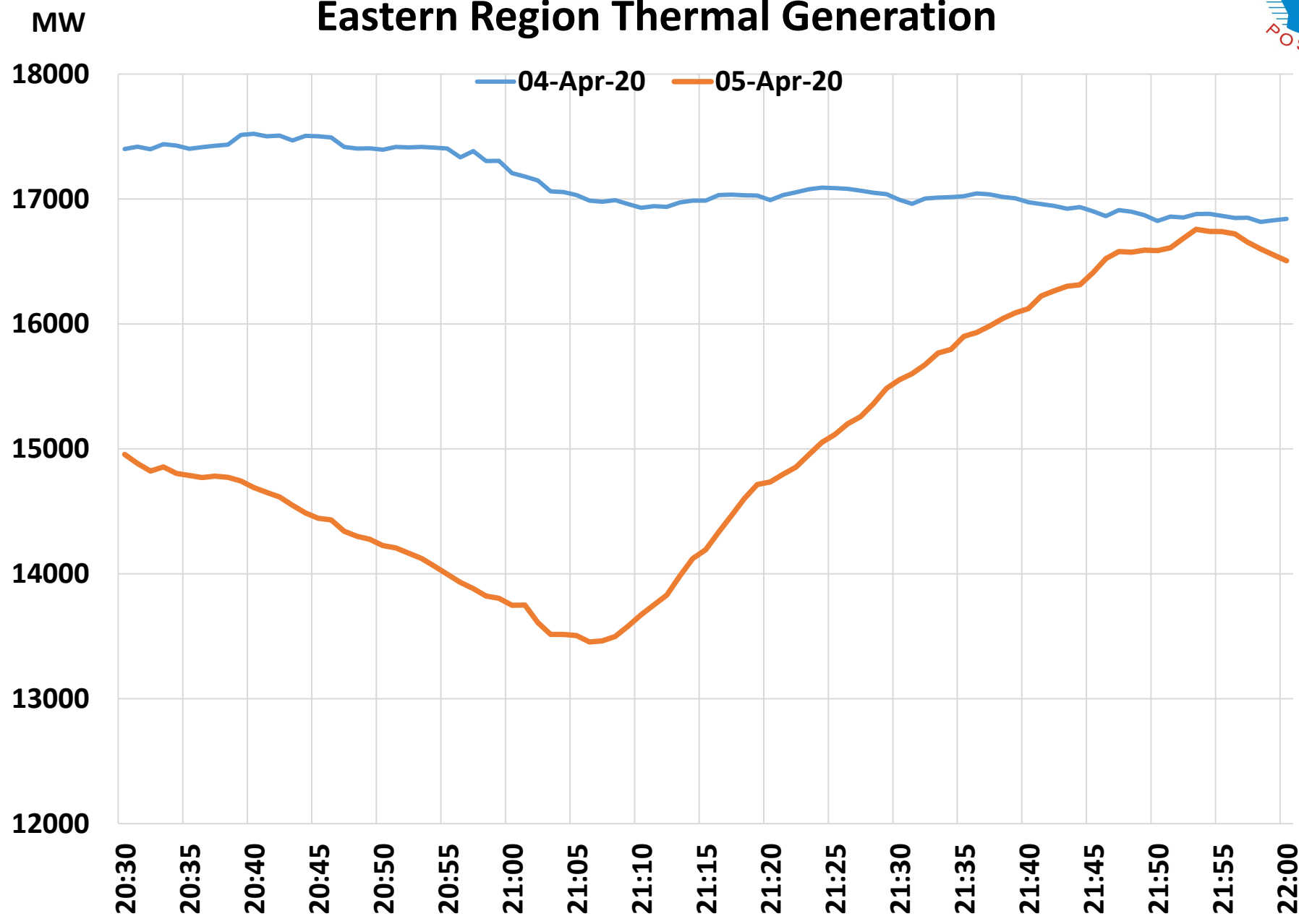
# Western Region Thermal Generation



# Southern Region Thermal Generation

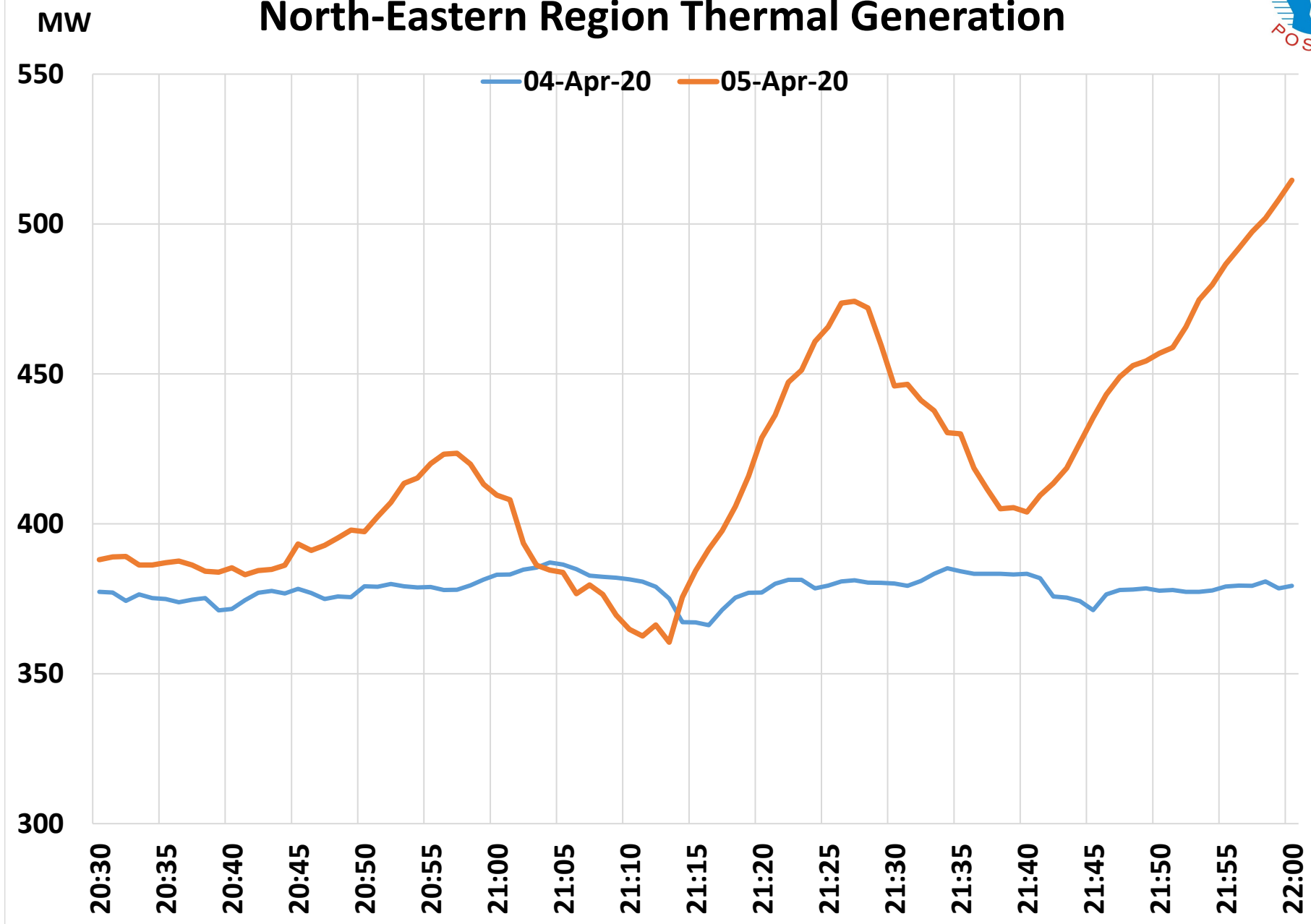


# Eastern Region Thermal Generation





# North-Eastern Region Thermal Generation





# All India Wind Generation

