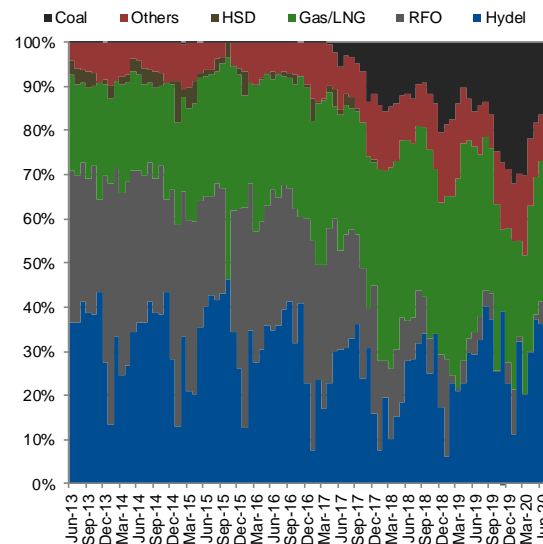


## Sector Update

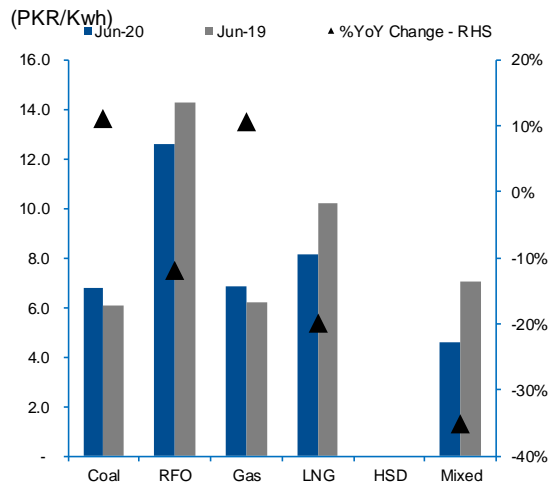
## Monthly Power Generation Mix (Jun-20) - Gwh

Source	Jun-20	Jun-19	YoY	FY20	YoY
Hydel	4,817	3,840	25%	38,700	20%
RFO	647	695	-7%	4,178	-54%
Gas/LNG	4,262	5,494	-22%	38,894	-22%
HSD	-	-	n/a	1	-98%
Coal	2,156	2,037	6%	25,553	57%
Others	1,406	1,090	29%	14,542	-1%
Total	13,288	13,157	1%	121,868	-1%

## Exhibit: Fuel Wise Generation Mix (%)



## Exhibit: Fuel Wise Cost of Generation - Jun-20



Source: NEPRA &amp; IGI Research

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## Power Generation &amp; Distribution

## Jun-20: Generation remained flat as Covid-19 outbreak kept a lid on demand growth

- ✓ As per latest data available on NEPRA's website, overall power generation during the month of Jun-20 remained flat at 13,288Gwh. Power production through Coal/Hydel clocked in at 2,156/4,817Gwh up by +6%/+25% YoY,
- ✓ Power generation through RFO in Jun-20 dropped by 7% YoY (down by 48Gwh) to 647Gwh. Gas/LNG based power generation dropped by 22% YoY (1,232Gwh) to 4,262Gwh in Jun-20 on the back of lower generation from a) GENCO I-III (contributing 299Gwh), KAPCO (down by 316Gwh), Rousch (down by 125Gwh) and, d) other smaller IPPs cumulatively contributing 492Gwh,
- ✓ As per NEPRA, power cost on RFO during Jun-20 is down by 12% YoY (or up by +29% MoM) to PKR 12.59/Kwh. However, gas price rose to PKR 6.85/Kwh up by +11% YoY (up by +10% MoM) while generation cost through LNG stood PKR 8.17/Kwh, down by 20% YoY or 15% MoM,

## Power production remained flat at 13,288Gwh during Jun-20

As per latest data available on NEPRA's website, overall power generation during the month of Jun-20 remained flat at 13,288Gwh. Power production through Coal/Hydel clocked in at 2,156/4,817Gwh up by +6%/+25% YoY, while generation through RFO/Gas-LNG decreased by 7%/22% YoY to 647/4,262Gwh during Jun-20. Pickup in demand compared to May-20 was up 11% MoM primarily attributable to further ease in lockdowns post Covid-19 outbreak. This brings total generation for FY20 to 121,868 down by 1% YoY primarily led by +57%/+20% YoY rise in production through Coal/Hydel contributing 21%/32% of the total power generation while contribution from FO based power generation is down to 3% as compared to 7% in FY19.

## FO: Generation down by 7%YoY in Jun-20

Power generation through RFO in Jun-20 dropped by 7% YoY (down by 48Gwh) to 647Gwh, owing to lower generation from GENCO I, Nishat Power, Narowal, Hub Plant and Nishat Chunian (cumulatively down by 193Gwh) while generation from GENCO III, Kohinoor and KAPCO was up cumulatively by 171Gwh. This brings total generation for FY20 to 4,178Gwh down by 54% YoY owing to lower generation from Hub Plant, KAPCO Block I & II and GENCO I & III along with lower generation from smaller inefficient IPPs such as Lalpir and Pakgen.

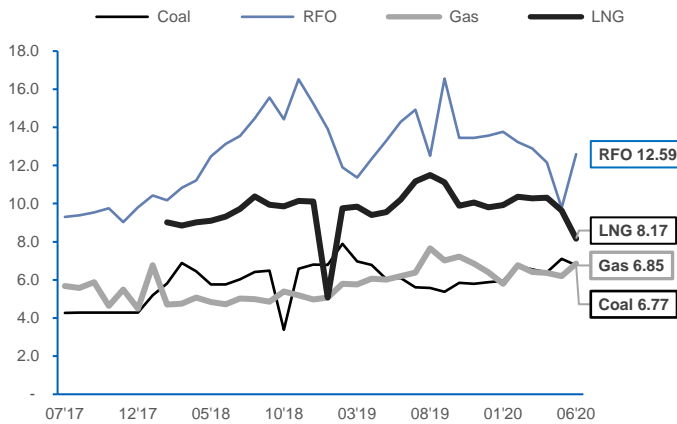
## Gas/LNG generation down by 22%YoY during Jun-20

Gas/LNG based power generation dropped by 22% YoY (1,232Gwh) to 4,262Gwh in Jun-20 on the back of lower generation from a) GENCO I-III (contributing 299Gwh), KAPCO (down by 316Gwh), Rousch (down by 125Gwh) and, d) other smaller IPPs cumulatively contributing 492Gwh. This brings total generation in FY20 to 38,894Gwh down by 22% YoY led by lower generation from KAPCO, GENCO I-III and smaller IPPs.

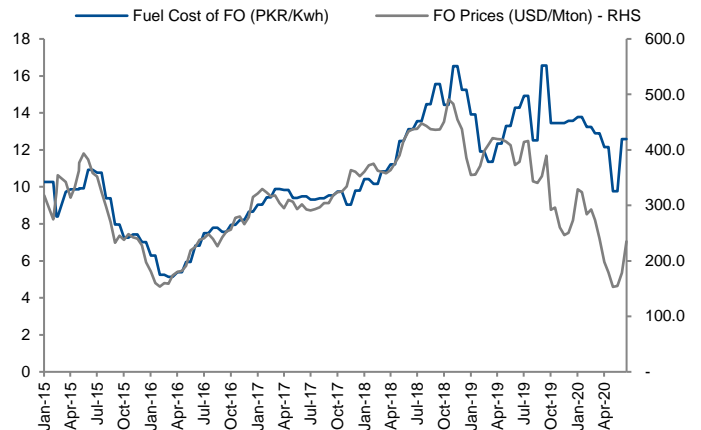
**Generation cost on RFO down by 12%YoY to PKR 12.59/Kwh during Jun-20**

As per NEPRA, power cost on RFO during Jun-20 is down by 12% YoY (or up by +29% MoM) to PKR 12.59/Kwh. However, gas price rose to PKR 6.85/Kwh up by +11% YoY (up by +10% MoM) while generation cost through LNG stood PKR 8.17/Kwh, down by 20% YoY or 15% MoM. For the month of Jul-20 to date, international RFO (180cst bunker fuel) prices have averaged USD 236/Mton as compared to USD 207/Mton in the preceding month. Cost of generation on LNG is down owing to substantial drop in oil prices during Mar to Apr-2020 which has reflected in LNG prices for Jun-20 as it's based on 3month average price of Brent Crude oil.

**Exhibit: Cost of generation on FO and Gas (According to Data released by NEPRA)**



**Exhibit: FO Prices (USD/Mton) and Fuel Prices (PKR/Mton)**



**FO plants moved down on merit order list during Jun-20**

FO plants have moved down in the merit in Jun-20 on account of significant drop in LNG prices owing to drop in international oil prices. Cost of generation remained relatively unchanged on monthly basis except for Attock Gen and Kohinoor energy which witnessed a sharp rise in fuel cost thus moving sharply down the merit order list. However other FO plants recorded a slight movement down the pecking order as generation cost of LNG plants came down by nearly 16% MoM. Coal plants remained relatively unchanged in the merit order list.

**Outlook**

Post Covid-19 outbreak, generation mix has remained relatively volatile owing to IMO 2020 and substantial drop in oil prices which pushed FO plants up in the merit order list during early 1HFY20 whereas fuel shortage and absence of imports had led to and laggard impact of drop in oil prices reflecting in LNG price led to recent shift in generation mix towards LNG. However going forward, as demand picks up post Covid-19 and peak summer season we believe FO plants are likely to remain operational whereas in the long term contribution of FO plants in total generation mix would remain low whereas LNG and coal contribution would increase.

**Exhibit: Pakistan Merit Order list (Rank)**

Plant	Fuel Type	Capacity (MW)	22-Jun-20	8-Jun-20	21-May-20	11-May-20	6-May-20	21-Apr-20	3-Apr-20	Mar-20	Dec-19	Jul-19	Dec-18	Jul-18
Hub Plant	RFO	1,200	108	107	105	106	99	98	84	85	98	82	89	70
Narowal	RFO	214	86	86	82	81	67	68	63	63	70	76	70	58
Nishat Power	RFO	195	101	100	96	96	88	88	69	70	72	70	65	63
Nishat Chunian	RFO	196	84	85	81	77	65	59	56	56	71	66	64	64
Lalpir	RFO	350	70	71	108	67	55	55	48	52	83	81	69	76
Pakgen	RFO	349	87	87	83	82	68	70	65	66	90	79	76	79
Attock Gen	RFO	156	38	24	8	8	8	23	12	21	24	75	52	68
Kohinoor Energy	RFO	124	79	14	35	42	32	66	26	48	51	65	66	69
Saba Power	RFO	126	89	88	86	85	70	71	67	69	88	78	71	74
Atlas Power	RFO	214	82	82	75	75	63	62	58	59	69	68	62	65
Gulf Powergen	RFO	62	62	63	53	53	46	44	39	39	41	43	37	44
Liberty	RFO	196	63	78	66	66	54	53	47	47	66	56	61	56
CPHGC	Coal	1,220	9	8	7	7	7	6	5	5	6	-	-	-
Engro Power Thar	Coal	660	3	3	3	3	3	3	3	3	3	4	-	-
Port Qasim	Coal	1,320	8	6	6	6	6	5	6	6	5	6	9	15
Sahiwal Coal	Coal	1,320	19	26	17	18	18	15	14	12	9	16	24	25
QATPL	RLNG	1,180	7	9	13	13	21	20	32	25	23	39	33	31
Haveli Bahdur Shah	RLNG	1,230	5	5	9	9	17	18	28	22	21	36	31	29
Baloki	RLNG	1,320	6	7	11	11	19	19	31	24	22	38	32	30
Halmore	RLNG	199	13	15	23	25	36	34	53	49	43	49	40	37
Sapphire	RLNG	203	14	16	24	26	37	35	54	50	42	47	38	35
Saif	RLNG	204	15	17	25	24	33	36	55	51	44	48	39	36
Orient	RLNG	213	12	12	21	22	29	31	51	43	39	45	36	33
Davis	RLNG	10	42	43	54	54	71	80	86	88	86	84	74	67
Rousch	RLNG	395	22	23	30	30	45	46	66	61	53	54	54	45
Nandipur	RLNG	411	16	18	26	17	25	25	42	38	33	42	34	32
Fauji Kabirwala	Gas	151	30	32	36	35	56	69	64	65	62	65	49	34

**Exhibit: Fuel cost of IPPs (PKR/kwh)**

Plant	Fuel Type	Capacity (MW)	22-Jun-20	8-Jun-20	21-May-20	11-May-20	6-May-20	21-Apr-20	3-Apr-20	Mar-20	Dec-19	Jul-19
Hub Plant	RFO	1,200	17.14	17.14	17.14	17.14	17.14	17.14	17.14	17.14	17.41	17.44
Narowal	RFO	214	13.08	13.08	13.08	13.14	13.14	13.08	13.08	13.07	13.74	14.95
Nishat Power	RFO	195	14.86	14.86	14.86	14.86	14.86	14.86	13.91	13.91	13.74	14.34
Nishat Chunian	RFO	196	12.61	12.91	12.91	12.51	12.51	12.09	12.07	12.05	13.62	13.63
Lalpir	RFO	350	12.83	12.67	18.43	12.80	12.80	12.80	12.80	12.80	16.12	16.97
Pakgen	RFO	349	14.33	14.33	14.33	14.33	14.33	14.33	14.33	14.33	16.40	16.31
Attock Gen	RFO	156	8.64	6.85	4.96	4.85	4.85	8.24	6.47	8.79	8.58	14.46
Kohinoor Energy	RFO	124	12.60	6.53	9.69	10.09	10.09	13.19	9.95	11.93	12.10	14.18
Saba Power	RFO	126	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.08	16.36	16.06
Atlas Power	RFO	214	12.30	12.30	13.33	12.30	12.30	12.30	12.30	12.33	13.50	14.05
Gulf Powergen	RFO	62	9.85	9.85	9.85	9.85	9.85	9.85	9.85	9.85	9.85	9.85
Liberty	RFO	196	10.52	12.03	11.30	11.30	11.30	11.30	11.30	11.30	13.12	12.84
CPHGC	Coal	1,220	5.93	5.51	5.51	5.51	5.48	5.48	5.07	5.07	5.54	-
Engro Thar	Coal	660	2.14	2.14	2.14	2.06	2.06	2.06	2.07	2.07	2.08	3.68
Port Qasim	Coal	1,320	6.11	5.58	5.58	5.58	5.54	5.54	5.42	5.42	5.09	5.46
Sahiwal Coal	Coal	1,320	7.69	8.18	8.18	8.18	8.49	8.49	8.20	8.20	6.88	7.17
QATPL	RLNG	1,180	5.70	5.61	6.75	6.74	8.55	8.75	10.59	10.08	9.38	10.03
Haveli BahdurShah	RLNG	1,230	5.65	5.56	6.69	6.65	8.43	8.63	10.44	9.94	9.25	9.89
Baloki	RLNG	1,320	5.69	5.60	6.74	6.74	8.55	8.74	10.58	10.07	9.37	10.02
Halmore	RLNG	199	6.97	6.86	8.25	8.24	10.45	10.69	12.94	12.32	11.46	12.07
Sapphire	RLNG	203	6.98	6.87	8.27	8.26	10.47	10.71	12.96	12.35	11.46	12.07
Saif	RLNG	204	6.99	6.88	8.28	8.26	10.47	10.71	12.96	12.35	11.49	12.07
Orient	RLNG	213	6.98	6.87	8.27	8.26	10.47	10.71	12.96	12.35	11.49	12.07
Davis	RLNG	10	9.55	9.40	11.33	11.26	14.37	15.01	16.91	16.91	15.78	17.10
Rousch	RLNG	395	7.69	7.57	9.11	9.10	11.54	11.80	14.28	13.60	12.65	13.69
Nandipur	RLNG	411	7.08	6.97	8.39	7.56	9.59	9.81	11.87	11.30	10.52	11.38
Fauji Kabirwala	Gas	151	7.99	7.87	9.47	9.46	11.99	13.14	13.14	13.14	13.14	13.06

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