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Monthly Power Generation Data

Apr-21: Generation up by +25%YoY; FO and LNG remained relatively unchanged in merit order list

As per latest data available on NEPRA's website, overall power generation during the month of Apr-21 increased by +25%YoY to 10,481Gwh. Power production through RFO/Gas & LNG/Coal/Hydel clocked in at 148/3,849/2,440/2,573Gwh up by +4.9x/+39%/+34%/+4%YoY, during Apr-21. Generation is up by +17%MoM during Apr-21 compared to Mar-21.

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- This brings total generation for 10MFY21 to 92,371Gwh up by +7%YoY primarily led by +27%/+7%/+6%/+5%YoY incline in production through RFO/Gas & LNG/Hydel/Coal contributing 4%/32%/30%/22% of the total power generation during 10MFY21.
- **RFO:** Power generation through RFO in Apr-21 leaped up by +4.9xYoY (up by 117Gwh) to 148Gwh, owing to higher generation from Narowal, Liberty, Atlas, AED Lalpir, Nishat Chunian and Nishat Power, cumulatively contributing 117Gwh. This brings total generation for 10MFY21 to 4,325Gwh up by +27%YoY owing to higher generation from Atlas, KAPCO Block I, Attock Gen, Lalpir, Pakgen, Atlas, Nishat Chunian and Nishat Power.
- **Gas:** Gas/LNG based power generation increased by +39%YoY (1,086Gwh) to 3,849Gwh in Apr-21 on the back of higher generation from Haveli Bahadurshah (contributing 100Gwh), Haveli Bahadur Shah (up by 87Gwh) and, smaller IPPs (contributing 880Gwh). This brings total generation in 10MFY21 to 32,988Gwh up by +7%YoY led by higher generation from QATPL, Baloki, Haveli Bahadurshah and other smaller IPPs

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- **Coal:** Coal based power generation inclined by +34%YoY (616Gwh) to 2,440Gwh during Apr-21 on the back of higher generation from CPHGC, Coal Fired Power Plant and Engro PowerGen Thar (up by 714Gwh) while generation from Port Qasim declined during the month of Apr-21. For 10MFY21 generation is up by +5%YoY to 22,339Gwh led by higher generation from CPHGC and Coal Fired Power Plant (Huaneng Shandong Ruyi Energy (Pvt) Ltd) while lower generation from Engro and Port Qasim.
- **Generation cost on RFO down by 1%YoY to PKR 12.0/Kwh during Apr-21:** As per NEPRA, power cost on RFO during Apr-21 is down by 1%YoY (up by +1%MoM) to PKR 12.01/Kwh. However, gas price increased to PKR 7.46/Kwh up by +17%YoY while generation cost through LNG stood PKR 9.89/Kwh, down by 4%YoY or up +9%MoM.
- **FO and LNG plants remained relatively unchanged in merit order list during Mar-21:** FO and RLNG plants remained relatively unchanged in merit order list as cost of generation was flat for LNG while FO prices increased by +9%MoM compared to Mar-21. However, FO plants still remained unchanged due to +10%MoM rise in cost of generation for coal based plants. However, during May-21 most of the FO plants moved down the merit order list while LNG plants remained relatively unchanged compared to Apr-21.
- **Outlook:** As a result increase in prices and depleting gas reserves, FO plants have moved up in the merit order list. RFO plants are likely to remain up in the merit order list as summer approaches while generation through gas is also likely to pick up as demand from domestic sector reduces post winters. Generation through coal is likely to remain strong owing to lowest cost of generation, however, recent spike in coal prices have led to rise in generation cost on coal. LNG based power generation may gain further traction from 2022 onwards as new LNG contract at lower prices comes in to effect

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Exhibit: Power Generation Mix (Apr-21)

GWH	Apr-21	Apr-20	YoY	Mar-21	MoM	10MFY21	10MFY20	YoY
Hydel	2,573	2,482	4%	1,741	48%	31,116	29,426	6%
RFO	148	30	386%	235	-37%	4,325	3,402	27%
Gas	1,278	889	44%	1,036	23%	11,581	12,613	-8%
LNG	2,572	1,874	37%	1,893	36%	21,406	18,271	17%
HSD	0	0	n/m	0	n/m	335	1	500x
Coal	2,440	1,824	34%	2,734	-11%	22,339	21,208	5%
Others	1,471	1,291	14%	1,326	11%	11,749	11,642	1%
Total	10,481	8,391	25%	8,965	17%	102,852	96,563	7%

Source: IGI Research, NEPRA

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

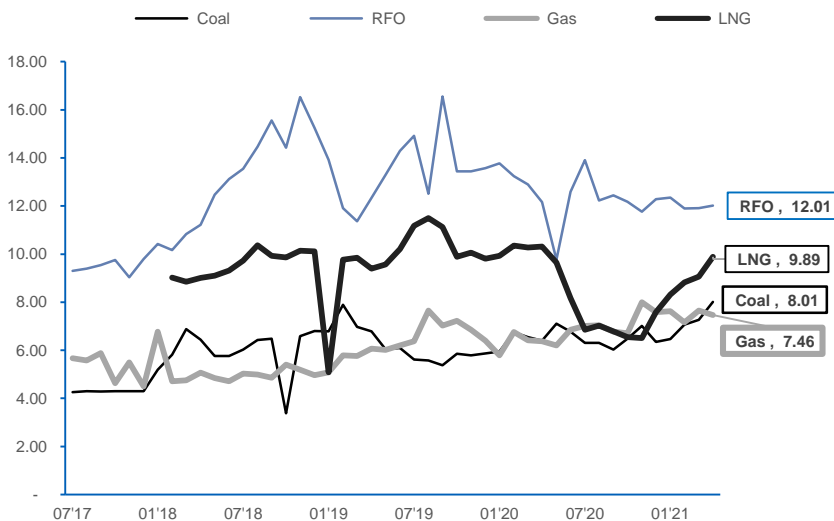
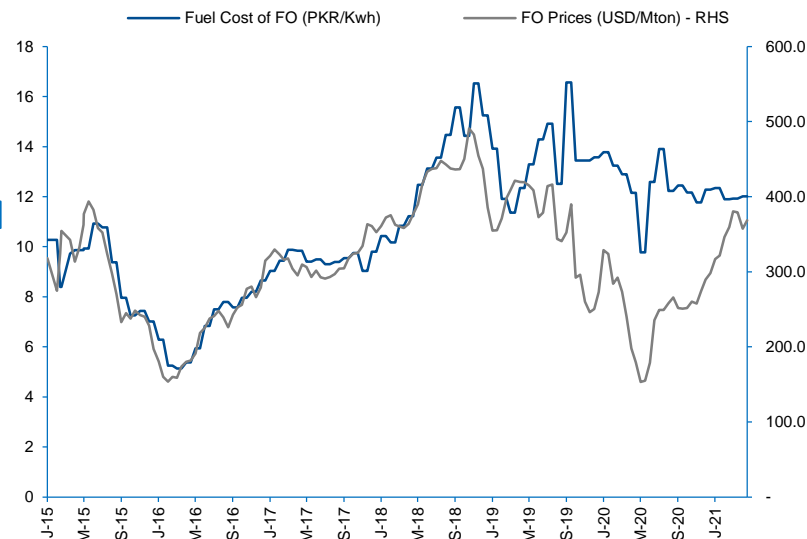


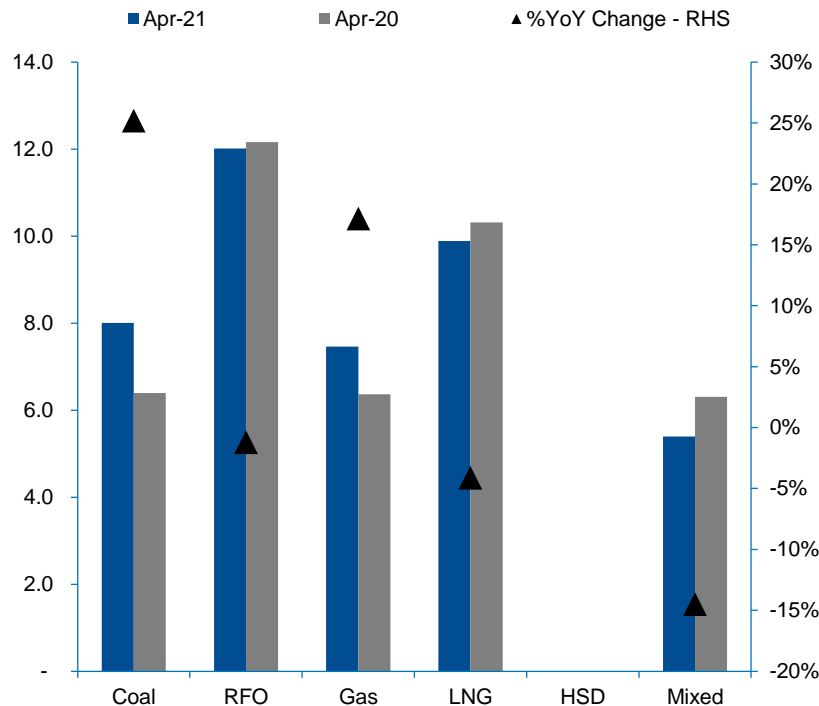
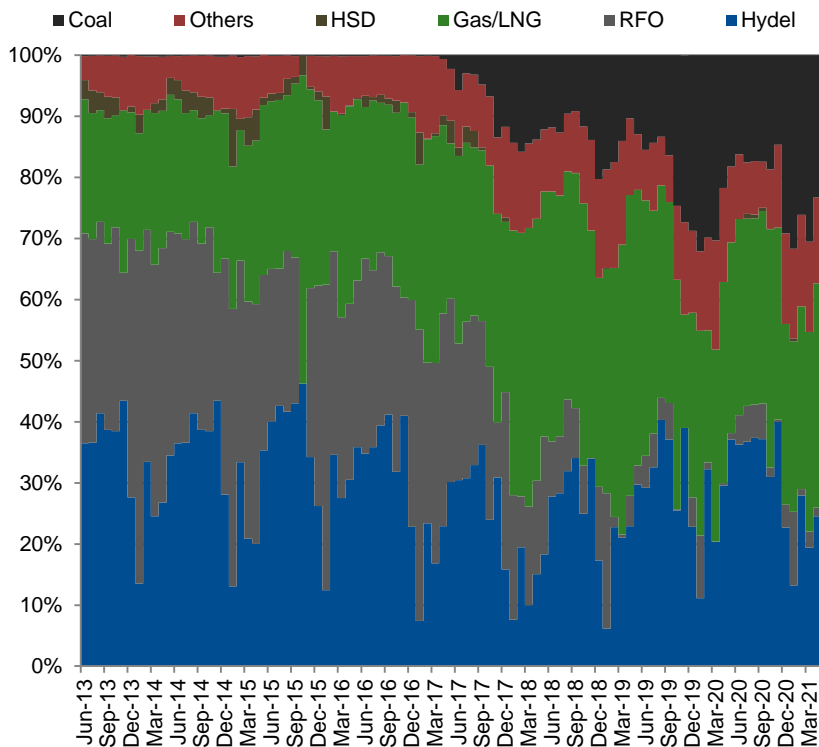
Exhibit: FO Prices (USD/Mton) and Fuel Prices (PKR/Mton)



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Exhibit: Fuel wise generation mix (%)

Exhibit: Fuel wise cost of generation – Apr-21 (PKR/Kwh)



Source: NEPRA, Bloomberg, IGI Research

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Exhibit: Pakistan Merit Order list

Plant	Fuel Type	Capacity (MW)	Merit Order List													
			1-Jun-21	21-May-21	16-May-21	1-May-21	16-Apr-21	1-Apr-21	Mar-21	Dec-20	Sep-20	Jun-20	Mar-20	Dec-19	Jul-19	Dec-18
Hub Plant	RFO	1,200	86	90	91	91	92	93	90	96	106	108	85	98	82	89
Narowal	RFO	214	51	54	54	51	54	55	54	63	76	86	63	70	76	70
Nishat Power	RFO	195	56	51	51	64	53	54	53	65	79	101	70	72	70	65
Nishat Chunian	RFO	196	53	57	57	54	51	51	50	66	78	84	56	71	66	64
Lalpir	RFO	350	78	99	99	58	60	64	68	54	48	70	52	83	81	69
Pakgen	RFO	349	83	97	84	63	62	94	58	64	88	87	66	90	79	76
Attock Gen	RFO	156	68	68	68	67	72	74	72	52	54	38	21	24	75	52
Kohinoor Energy	RFO	124	69	70	70	60	56	59	56	58	84	79	48	51	65	66
Saba Power	RFO	126	62	53	53	52	69	68	69	70	74	89	69	88	78	71
Atlas Power	RFO	214	47	49	49	49	52	53	52	60	72	82	59	69	68	62
Gulf Powergen	RFO	62	-	-	-	-	-	-	-	-	59	62	39	41	43	37
Liberty	RFO	196	76	62	62	55	50	50	49	67	81	63	47	66	56	61
CPHGC	Coal	1,220	4	4	4	4	4	5	5	5	7	9	5	6	-	-
Engro Power Thar	Coal	660	3	3	3	3	3	3	3	3	3	3	3	3	4	-
Port Qasim	Coal	1,320	7	7	7	5	5	4	4	4	4	8	6	5	6	9
Sahiwal Coal	Coal	1,320	21	23	23	20	20	20	19	7	9	19	12	9	16	24
QATPL	RLNG	1,180	27	20	20	22	21	21	21	19	10	7	25	23	39	33
Haveli Bahdur Shah	RLNG	1,230	20	18	18	18	18	18	18	16	6	5	22	21	36	31
Baloki	RLNG	1,320	22	19	19	19	19	19	20	17	8	6	24	22	38	32
Halmore	RLNG	199	38	37	37	37	37	37	37	33	17	13	49	43	49	40
Sapphire	RLNG	203	37	36	36	36	36	36	35	32	16	14	50	42	47	38
Saif	RLNG	204	39	38	38	38	38	38	38	34	18	15	51	44	48	39
Orient	RLNG	213	36	35	35	35	35	34	35	29	12	12	43	39	45	36
Davis	RLNG	10	70	64	64	68	66	63	65	59	44	42	88	86	84	74
Rousch	RLNG	395	48	44	44	44	44	42	44	40	24	22	61	53	54	54
Nandipur	RLNG	411	41	39	39	39	39	39	39	35	19	16	38	33	42	34
FKPCL	Gas	151	59	55	55	56	57	56	57	49	32	30	65	62	65	49

Source: NEPRA, Bloomberg, IGI Research

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Exhibit: Fuel cost of IPPs

	Fuel Type	Capacity (MW)	Fuel Cost (PKR/Kwh)												
			1-Jun-21	21-May-21	16-May-21	1-May-21	16-Apr-21	1-Apr-21	Mar-21	Dec-20	Sep-20	Jun-20	Mar-20	Dec-19	Jul-19
Hub Plant	RFO	1200	17.63	17.63	17.63	17.63	17.63	17.63	17.63	17.30	17.30	17.14	17.14	17.41	17.44
Narowal	RFO	214	12.07	11.73	11.73	11.96	11.96	11.96	11.96	12.47	12.53	13.08	13.07	13.74	14.95
Nishat Power	RFO	195	12.65	11.79	11.79	12.84	11.79	11.79	11.79	12.61	12.52	14.86	13.91	13.74	14.34
Nishat Chunian	RFO	196	12.43	12.30	12.30	12.14	11.59	11.59	11.59	12.62	12.48	12.61	12.05	13.62	13.63
Lalpir	RFO	350	16.91	18.69	18.69	13.48	13.48	14.56	14.87	12.40	10.91	12.83	12.80	16.12	16.97
Pakgen	RFO	349	17.38	18.51	16.77	13.95	13.95	17.77	13.48	13.53	15.06	14.33	14.33	16.40	16.31
Attock Gen	RFO	156	14.23	14.07	14.07	13.25	14.25	14.55	14.26	11.03	10.11	8.64	8.79	8.58	14.46
Kohinoor Energy	RFO	124	14.80	14.66	14.66	12.80	12.32	12.80	12.56	12.56	13.85	12.60	11.93	12.10	14.18
Saba Power	RFO	126	14.75	13.05	13.05	13.05	15.08	15.08	15.08	14.05	13.24	14.68	14.08	16.36	16.06
Atlas Power	RFO	214	11.51	11.51	11.59	11.53	11.76	11.76	11.76	12.18	11.85	12.30	12.33	13.50	14.05
Gulf Powergen	RFO	62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.85	9.85	9.85	9.85	9.85
Liberty	RFO	196	15.57	12.91	12.91	11.99	11.38	11.38	11.38	12.57	12.65	10.52	11.30	13.12	12.84
CPHGC	Coal	1220	5.83	5.83	5.83	5.09	5.09	5.30	5.30	4.64	5.73	5.93	5.07	5.54	0.00
Engro Power Thar	Coal	660	2.54	2.59	2.59	2.59	2.59	2.60	2.60	2.69	2.71	2.14	2.07	2.08	3.68
Port Qasim	Coal	1320	7.01	7.01	7.01	5.80	5.80	4.91	4.91	4.43	4.34	6.11	5.42	5.09	5.46
Sahiwal Coal	Coal	1320	9.37	9.37	9.37	9.03	9.03	8.82	8.82	6.87	6.31	7.69	8.20	6.88	7.17
QATPL	RLNG	1180	9.37	8.80	8.80	8.87	8.79	8.64	8.86	7.96	6.06	5.70	10.08	9.38	10.03
Haveli Bahdur Shah	RLNG	1230	9.28	8.72	8.72	8.78	8.70	8.56	8.78	7.88	6.01	5.65	9.94	9.25	9.89
Baloki	RLNG	1320	9.35	8.78	8.78	8.85	8.77	8.63	8.85	7.94	6.05	5.69	10.07	9.37	10.02
Halmore	RLNG	199	11.43	10.73	10.73	10.82	10.72	10.54	10.81	9.71	7.40	6.97	12.32	11.46	12.07
Saphire	RLNG	203	11.43	10.73	10.73	10.81	10.72	10.54	10.81	9.71	7.40	6.98	12.35	11.46	12.07
Saif	RLNG	204	11.43	10.74	10.74	10.82	10.72	10.55	10.82	9.71	7.40	6.99	12.35	11.49	12.07
Orient	RLNG	213	11.43	10.74	10.70	10.82	10.72	10.55	10.82	9.71	7.40	6.98	12.35	11.49	12.07
Davis	RLNG	10	14.95	14.07	14.07	14.16	14.02	13.79	14.14	12.70	10.08	9.55	16.91	15.78	17.10
Rousch	RLNG	395	12.59	11.82	11.82	11.91	11.80	11.61	11.91	10.69	8.15	7.69	13.60	12.65	13.69
Nandipur	RLNG	411	11.59	10.88	10.88	10.97	10.87	10.69	10.96	9.84	7.50	7.08	11.30	10.52	11.38
FKPCL	Gas	151	13.08	12.29	12.29	12.38	12.27	12.07	12.38	11.09	8.47	7.99	13.14	13.14	13.06

Source: NEPRA, Bloomberg, IGI Research

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