

REP-081

Rating

Underweight

Sector Power

PAKISTAN POWER

Would Tariff revision curtail Circular Debt Accumulation? Reservations remain...

- Given the IMF's pre-requisite to approve the pending NEPRA Tariff determination, Government of Pakistan has notified the new base tariff
- The GoP determined tariff would be increase in three phases to PKR 23.4/kWh by October, 2022. A portion of the revenue requirement would be covered through subsidies
- We undertook the task to decipher if the announced tariffs would be enough to settle chronic power sector issue of recurring circular debt or not
- Briefly summarizing, the determined tariff seems inadequate to cover the costs which current dynamics would unravel
- Subsidy requirement for the sector by the government would remain high to keep the cash flows of the energy chain adequate
- A significant portion of the current tariff increase is already being passed through fuel adjustment charges but we believe relatively lower fuel adjustment charges would be passed on to consumers to cover the short fall in fuel charges
- The recent disbursements made by the government to IPPs has eased stock of circular debt also allowing companies to announce bumper dividends. Under the current circumstances accumulation of circular debt is expected to continue albeit with slower pace with each passing year
- Commodity price reversal could come as a blessing in disguise curtailing the energy payments whereas long term solutions would lie in reducing T&D losses, recoveries and improving the energy mix
- Full implementation of CTBCM would significantly reduce government's role and funding in setting tariffs but implementation has several road blocks which would take time to be cornered

Date

10th Aug, 2022

Industry Outlook

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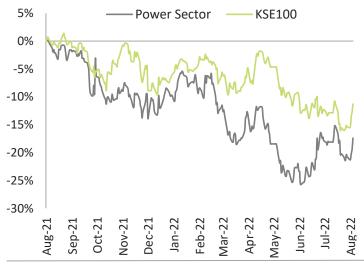
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expected Power Tariffs (PKR/kWh)	2023	2024	2025
СРР	13.41	14.40	14.90
Energy	16.23	13.29	12.33
Total Cost/unit	35.47	33.10	32.67
GoP Tariff	22.91	24.50	25.00
Consumer Tariff	27.32	26.39	26.15
Subsidy	3.25	3.58	3.82
Surplus/(Deficit) after Subsidy	(4.90)	(3.14)	(2.71)

Source: MSL Research, Nepra

Power Sector vs KSE100



Source: MSL Research, PSX



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Long Awaited Base Tariff Increase Notified



The government has implemented the recommendation of NEPRA for revision in base tariff from PKR 16.61/kWh to PKR 24.82/kWh. The tariffs notified by the government have been increased in three phases applicable from July, August and final increase in October ultimately reaching ~PKR 23.4/kWh. We decipher that a significant portion of the increase had been passing in shape of fuel charge adjustment to consumers. However, it is pertinent to mention that the tariff profile was shaped up in February, 2022. Since then, slippages have occurred relative to base line assumptions.

The revenue requirement of DISCOs has been calculated at PKR 2.8 trillion with energy charge and capacity charge contributing PKR 1.15 trillion and PKR 1.25 trillion, respectively translating into PKR 11.07/kWh for capacity payments and PKR 10.20/kWh for energy payments.

Astonishingly, the generation units have been assumed at ~14,600 MW for the whole year for generation companies against estimated generation of ~16,300 MW in FY22. However, T&D losses have been assumed at 11.7% against ~18% observed in FY21.

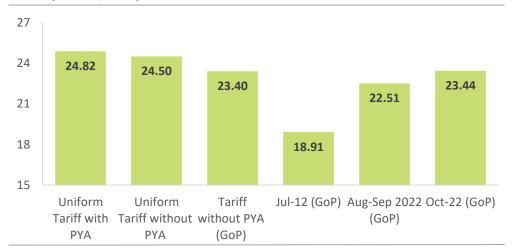
Inter Disco Tariff Differential subsidy has been kept at PKR 225 billion for the current year in the budget with total subsidy for power sector amounting to PKR 455 billion. The subsidy adequately covers for the committed tariff differential by the government. However, any slippages against built assumptions would add to circular debt. A notable change being incorporated is that the benefit of previous slab has been removed for customers consuming above 300 units which would allow some savings on subsidies.

NEPRA's determination of Revenue Requirement

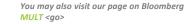
Units Received	GWh	127,974
Units Sold	GWh	113,001
Units Lost	GWh	14,973
T&D Losses	%	12%
Units Received	MW	14,609
Units Sold	MW	12,900
Units Lost	MW	1,709
T&D Losses	%	11.7%
Energy Charge	PKR mn	1,152,358
Capacity Charge	PKR mn	1,250,959
Transmission & MOF	PKR mn	114,606
Power Purchase Price	PKR mn	2,517,923
O&M Cost	PKR mn	197,037
Distribution Margin	PKR mn	243,963
Prior Year Adjustment	PKR mn	42,408
Revenue Requirement	PKR mn	2,804,294
Power Purchase Price - Unadjusted	PKR/kWh	19.68
Power Purchase Price - Adjusted	PKR/kWh	22.28
Distribution Margin	PKR/kWh	2.16
PYA Adjustments	PKR/kWh	0.38
Avg. Rate	PKR/kWh	24.82

Source: MSL Research, Nepra

Tariff (in PKR/kWh)



Source: MSL Research, Nepra







Upcoming Power Projects to extend the Capacity Bill



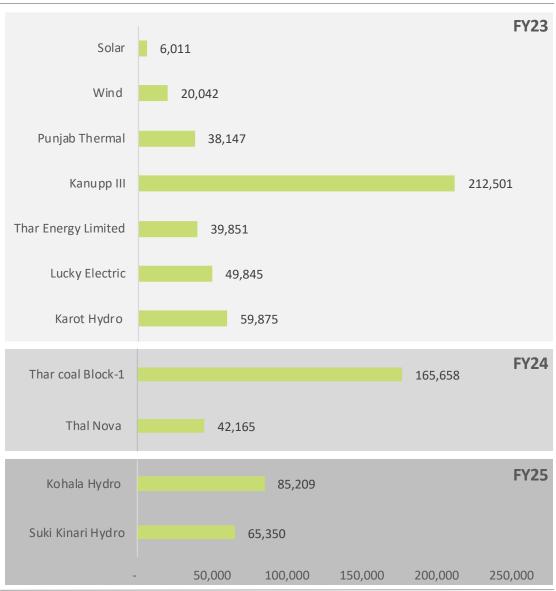
Since the advent of CPEC, Pakistan's Power sector has seen a plethora of investment in power plants. Since last 5 years ~15,000MW have been added to the power sector ranging from Hydro to Thermal energy.

After swift commercial operations of the initial projects under the CPEC, the progress of incorporation of new plants has slowed down.

However, in the coming years significant power capability is expected to be added to the system. Lucky Electric Power recently announced commercial operations of its coal power plant which is expected to add ~PKR 50 billion to the capacity charges. Another coal power, Thar Energy Limited, has braced up for commercial operations in 2023 to add about PKR 40 billion to the capacity bill. Plethora of plants are to be added in the renewable energy. The most notable addition to the power sector is the recent commissioning of KANUPP 3 which is expected to add ~PKR 200 billion to the capacity charges. Around 600 MW of Wind Power projects and 250 MW of Solar Projects are expected to generate electricity in 2023. Punjab Thermal is also expected to be powered in this year.

Next leg of Power sector expansion would be tilted towards hydroelectricity and coal power projects. Karot Hydro Power, ThalNova and Thar Coal Block-I power project would be fired in FY24. Suki Kinari and Kohala Hydro Project would be notable additions in the coming years.

Capacity Payments (in PKR mn)



Source: MSL Research



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Global Dynamics to cause trouble



The humongous increase in commodity prices has caused havoc globally. Given Pakistan's dependence majorly on thermal power with significant portion of power requirements coming from coal, gas, RLNG and RFO. The fuels are being imported or pricing linked with international prices. The actual fuel cost/kWh has increased from PKR 6.5/kWh in July 2021 to PKR 14.7/kWh in June 2022.

The fuel cost has been on the upward trajectory for the whole year. Subsequently, the prevailing commodity prices are expected to keep the fuel costs at elevated levels.

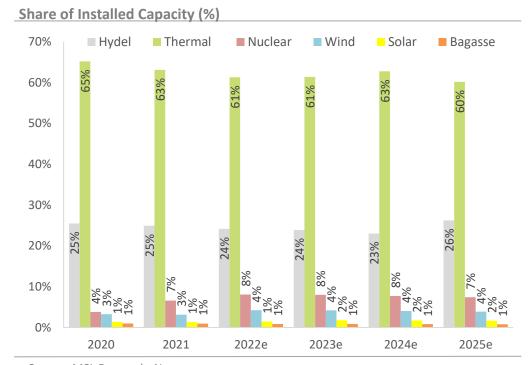
The weighted average energy cost based on generated units for FY23 is estimated at ~PKR 12.27/kWh at our assumed prices. We adjusted the commodity prices downward subsequently which would provide some relief to the elevated electricity charge.

The changing mix tilting towards renewables and Thar coal is also expected to provide some relief related to the energy charge component.

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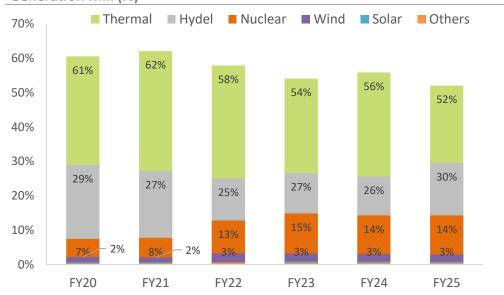
	2023	2024	2025	2026	2027	2028	2029	2030
PKR/USD	230	239	249	259	269	280	291	303
Oil Price (US\$/bbl)	105	90	90	90	90	90	90	90
Coal Price (US\$/mt)	300	200	200	200	200	200	200	200
RLNG (PKR/mmbtu)	4,217	3,778	3,929	4,086	4,250	4,420	4,597	4,781
Energy Payments (PKR/kWh)	12.27	10.28	9.70	10.19	10.68	12.72	12.43	13.30

Source: MSL Research



Source: MSL Research, Nepra

Generation Mix (%)



Source: MSL Research, Nepra

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Local Dynamics also aren't in favor



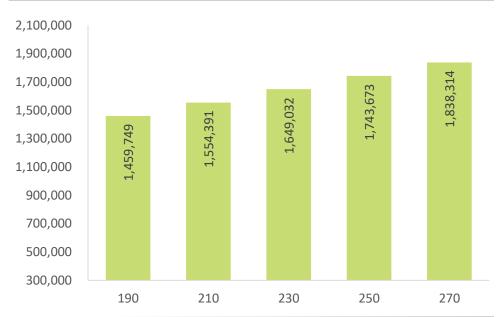
The slow progress of the incumbent government to take decisive actions has led to delays in fulfillment of commitments from IMF, multilateral and bilateral sources leading spiraling downward trajectory of rupee dollar parity.

Most of the tariff structure specifically of new plants is indexed to rupee dollar parity. Tariff modifications were done for some plants with ROE components of most of them being de-linked from currency changes.

However, the rupee depreciation would increase the overall capacity charges of the power sector. Although, the rupee dollar parity assumed in the tariff determination is not known but we decipher the parity would be lower than the current prevailing prices as the tariff was structured in February end of this year.

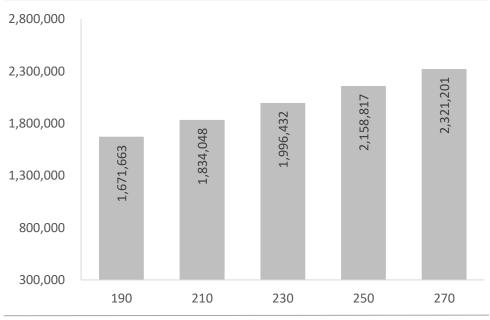
The current downfall of rupee could be explained through payments for massive imports done in June, strengthening dollar and delays in realization of export proceeds and confirmation of dollar proceeds. Subsequently, we have assumed rupee dollar parity at 230 this year. Any movement on the downside would be detrimental and upside would relieve pressure on capacity payments. Every PKR 10 change would translate towards reduction capacity payments of ~PKR 50 billion and energy payments would adjust downward by ~PKR 80 billion.

Capacity Payment (in PKR mn)



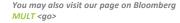
Source: MSL Research

Energy Payment (in PKR mn)



Source: MSL Research







Tariff modification to have limited impact



The government in 2020 re-negotiated the tariff structure of 47 IPPs. Majorly the power plants included RFO based plants followed by Chashma Nuclear, newly inducted RLNG, wind and solar plants.

The dollar indexation for ROEs of 2002 RFO plants have been de-linked and are now fixed in the rupees calculated through 17% ROE generation calculated at parity of PKR/USD 148. The said change according to our calculations would generate annual savings of ~PKR 30 billion translating into lowering capacity charge by ~PKR 0.24/kWh. The structure for 1994 IPPs has been adjusted downwards with PKR/USD indexation applicable on 50% of escalable component and variable O&M reduced by 11%. The expected saving would be around ~PKR 22 billion.

The RLNG projects have been reduced to 12% IRR from 16% with dollar indexation. The applied change would reflect in savings of ~PKR 8.5 bn. ROE for wind power projects have been reduced from 18% to 13% along with downward adjustments in O&M components. The ROE of solar projects have been reduced from 17% to 13%. Chashma's return has been fixed in rupees. The savings would translate into above PKR 30 billion savings.

The overall impact would be above ~PKR 90 billion reflecting in PKR 0.73/kWh saving in capacity charge.

The government tried to re-negotiate tariffs of coal power plants but the deal didn't materialize. The downward re-adjustment of return on equity would be near impossible but any negotiations related to stretching debt repayments could relieve per unit cost to material extent. By increasing the loan repayment period from 10 years to 20 years could lead to ~PKR 0.6/kWh downward adjustment in tariffs.

Change in Tariff Structure

In PKR mn	Pre	Post	Savings
1994 IPPs	88,072	57,558	30,514
2002 IPPs	67,295	44,917	22,377
RLNG	86,500	78,000	8,500
Renewables	93,737	61,929	31,808

Source: MSL Research, Nepra







Tariff Profile to be Different from Determined Estimates



Summing up the future tariff profile of the country, we decipher that based on current scenario the announced tariff would fall short of the notified tariffs.

Energy Payments are expected to remain elevated

The significant rupee depreciation in recent time has increased the capacity payments profile and also affected the energy payments. The expected improvement in fuel mix would come as good omen to curtail the impact of higher tariffs albeit it would fall short to cover the costs. The tariff determination assumes energy payment tariffs at PKR 10.2/kWh. It is pertinent to mention that the reference fuel costs assumed in the tariff petition aren't known but seem to be based on lower fuel prices as highlighted by the fuel cost of June 2022 which clocked in at PKR 14.7/kWh. We forecast energy payments per recovered unit would be ~PKR 16.23/kWh in 2023 before declining towards ~PKR 12.3/kWh by 2025 based on our commodity price, energy mix and recovered units assumptions.

Fuel cost adjustments are expected to continue

The reference fuel costs assumed in the tariff petition aren't known but the difference in energy costs would be mostly derived from variations in fuel costs. The energy payments/unit assumed in the tariff petition is PKR 10.2/kWh which we calculate would be significantly lower than the actual energy payments. The difference against reference fuel cost would be passed on as fuel adjustments in the tariff which we believe remain part of the tariffs until commodities start tapering off.

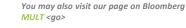
Expected Tariff Profile

In PKR mn	2023	2024	2025	2026	2027	2028
Capacity Payments	1,649,032	1,884,051	2,062,080	2,095,196	2,127,336	2,012,065
Energy Payments	1,996,432	1,738,790	1,706,946	1,863,900	2,032,259	2,517,761
Transmission & MOF	182,273	181,142	188,451	197,955	207,980	226,491
Power Purchase Price	3,827,737	3,803,982	3,957,477	4,157,050	4,367,575	4,756,317
O&M Cost	197,037	204,918	213,115	221,639	230,505	239,725
Distribution Margin	295,163	323,049	351,465	382,367	414,771	449,916
Prior Year Adjustment	42,408	-	-	-	-	-
Total Cost	4,362,345	4,331,949	4,522,056	4,761,057	5,012,851	5,445,959

PKR/kWh	2023	2024	2025	2026	2027	2028
СРР	13.41	14.40	14.90	14.32	13.79	12.37
Energy	16.23	13.29	12.33	12.74	13.17	15.48
Transmission	1.48	1.38	1.36	1.35	1.35	1.39
PPP	31.12	29.07	28.59	28.40	28.31	29.24
O&M Cost	1.60	1.57	1.54	1.51	1.49	1.47
Distribution Margin	2.40	2.47	2.54	2.61	2.69	2.77
Total Cost/unit	35.47	33.10	32.67	32.53	32.49	33.48
GoP Tariff	22.91	24.50	25.00	25.00	25.00	25.00
Fuel Adjustment	4.41	1.89	1.15	1.64	2.18	4.51
Consumer Tariff	27.32	26.39	26.15	26.64	27.18	29.51
Surplus/(Deficit)	(8.15)	(6.71)	(6.53)	(5.89)	(5.31)	(3.98)
Subsidy	3.25	3.58	3.82	3.97	4.15	3.98
Surplus/(Deficit) after Subsidy	(4.90)	(3.14)	(2.71)	(1.91)	(1.16)	-

Source: MSL Research, Nepra







Expect Circular Debt Accumulation to continue



Curtailment in T&D losses could be of help

The assumed T&D losses in the tariff petition are assumed at 11.7% which seems too optimistic when tallied against the numbers of 2020 and 2021 which clocked in at ~18.6% and ~17.95%, respectively. We assume T&D losses of 16% in 2023 and take a declining profile over the horizon. Improvement in T&D losses would be of massive help to curtail circular debt position as 1% curtailment in T&D loss would help in reducing the cost by ~PKR 0.34/kWh.

Recoveries would be another source of help

The improvement in recoveries would also allow curtailment of circular debt. The low recoveries by some DISCOs has remained a cause of concern. In 2021, the recovery levels were better as some DISCOs were able to collect previously pending bills. With the significant increases in tariff, the recovery levels could fall which we have assumed at 90% and improved over the coming years. Every 1% higher recovery would result in ~PKR 0.34/kWh lower cost.

Power Subsidies would continue

Power subsidies would continue in the coming years to plug in the gaps in tariff which we've assumed at ~0.5% of GDP. Average subsidy disbursement over the next 5 years would be above ~PKR 500 billion. Any short fall in subsidy disbursements would further increase the accumulation of circular debt.

Despite significant subsidy disbursements, recoveries are expected to still fell short. Circular debt is expected to accumulate over the coming years.

	Unit	2023	2024	2025	2026	2027
Capacity	MW	44,706	46,356	48,350	48,650	48,650
Generation (MW)	MW	18,571	19,313	20,086	20,889	21,725
Utilization	%	42%	42%	42%	43%	45%
Units Generated	GwH	136,649	143,807	150,439	157,372	164,142
Units Dispatched	GwH	114,092	117,756	129,829	136,649	143,807
Units Recovered	GwH	122,984	130,865	138,404	146,356	154,294
T&D Losses	%	16%	15%	15%	14%	14%
Non Recoveries	%	10%	9%	8%	7%	6%
Potential Increase in Circular Debt	PKR mn	1,002,423	878,287	903,285	861,565	818,978
Subsidy Disbursement	PKR mn	400,000	468,000	528,840	581,724	639,896
Increase in Circular Debt	PKR mn	602,423	410,287	374,445	279,841	179,081

Source: MSL Research



Source: MSL Research, Nepra

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Expect Circular Debt Accumulation to continue

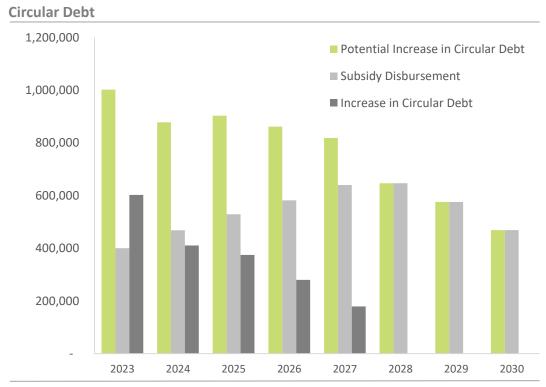


Circular Debt Accumulation to continue

Despite significant subsidy disbursements, recoveries are expected to still fall short. Circular debt is expected to accumulate over the coming years albeit the accumulation of circular debt would slow down with deficit falling to below PKR 2/kWh by 2026. Regular subsidy disbursements would be required to keep the circular debt accumulation limited. Post completion of tariffs of several plants in 2028, accumulation due to tariff differential is expected to fall drastically by ~PKR 200 billion.

Consumer tariff would remain elevated

Respite is difficult to arise for consumer end tariff under the current circumstances. The government would have to go for further tariff increases in the coming years to control the accumulation of circular debt or else the amount of subsidy disbursements would have to enhance.



Source: MSL Research

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Multiline Securities



Mean Reversion of Commodities would serve as Silver Lining



It is pertinent to highlight that the energy cost per unit would be higher than the capacity charge. The base tariffs are computed at elevated levels of commodity prices. Mean reversion of commodities to lower levels would reduce the required tariff and relieve pressure on the energy chain.

Roughly 20% reduction in commodity prices from current levels would reduce the total cost by ~PKR 3/kWh. Any decline from there would allow government to reduce subsidy requirement or pass on the benefit to the end consumers. The process would involve revising the composition of base tariff incorporating the lower fuel prices and tilting the tariff to cover capacity payments, T&D losses and recoveries. About 40% decline in commodity prices from current levels would allow the tariff to balance given that the consumer tariff is fixed at ~PKR 27/kWh (which we assume consumers would be charged inclusive of fuel adjustments) by revising the composition of capacity and energy charge per unit (i.e., no fuel adjustment occurs) and continuing with our power subsidy assumption of PKR 400 billion.

Swift commodity price decline could open up the valuations of Power Sector allowing better cash flows to the companies given power subsidy is disbursed timely. On the flip side, if the lower commodity are passed on through negative fuel adjustments energy intensive sector would seek to be the beneficiary.

Distributable ROE Component



Scenario 1 - Impact passed to consumers

Decline in commodity prices (FY23e)	Base case	20%	40%
Total Cost/unit	35.47	32.47	29.46
GoP Tariff	22.91	22.91	22.91
Fuel Adjustment	4.41	1.83	(0.74)
Consumer Tariff	27.32	24.74	22.17
Surplus/(Deficit)	(8.15)	(7.72)	(7.29)
Subsidy	3.25	3.25	3.25
Surplus/(Deficit) after Subsidy	(4.90)	(4.47)	(4.04)
Potential Increase in Circular Debt	1,002,423	949,631	896,839
Subsidy Disbursement	400,000	400,000	400,000
Increase in Circular Debt	602,423	549,631	496,839

Source: MSL Research

Scenario 2 - Base Tariff revised retaining the benefit

Decline in commodity prices (FY23e)	Base case	20%	40%
Total Cost/unit	35.47	32.57	29.68
Consumer/GoP Tariff	27.32	27.32	27.32
Surplus/(Deficit)	(8.15)	(5.25)	(2.36)
Subsidy	3.25	3.25	3.25
Surplus/(Deficit) after Subsidy	(4.90)	(2.00)	0.90
Potential Increase in Circular Debt	1,002,423	632,878	263,333
Subsidy Disbursement	400,000	400,000	400,000
Increase in Circular Debt	602,423	232,878	(136,667)

Source: MSL Research



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Source: MSL Research

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CTBCM would be a long term prospect, Improving Energy Mix could provide respite



The application of Competitive Trading Bilateral Contract Market model is still in its infancy stage. When fully implemented, IPPs which have signed the agreement related to modification of their tariffs would shift to this model in which wholesale market would be created for bulk buyers. We believe the step is in the right direction but the exercise to be a success all plants would have to shift towards market determined mode instead of fixed tariffs. The onus on government to pay capacity payments would subside for the plants shifting to CTBCM model but the per unit capacity charge would enhance for the government. However, the energy charge would drastically go south as most of thermal plants would shift towards wholesale market-based model. The tariff charges in wholesale market would be dependent on transmission charges and fuel cost. Parallel tariffs by government and individual plants would create difficulty in making a market for individual plants as most plants are expected to deliver tariffs higher than the one determined by the government due to relatively higher fuel cost. The implementation to be a success, all plants need to shift towards the bilateral markets. Over the longer horizon, government would only serve as a provider of transmission services translating into lower pressure on the fiscal account to fund tariff differential subsidies and no liabilities towards IPPs.

The improvement in energy mix more towards renewable sources would also provide a better framework in curtailing the energy payments per unit. The contribution from renewable sources has been around ~42% which is expected to improve with the commissioning of Karot Hydropower and KANUPP 3. Further improvements against our expectations would allow curtailment of consumer tariffs or circular debt. 1% shift towards renewable resources leads to ~PKR 0.2/kWh reduction in energy payments translating into savings of ~PKR 25 billion.

	FY23	FY24	FY25	FY26
Total Payments in PKR mn				
Capacity Payments - pre CTBCM	1,649,032	1,884,051	2,062,080	2,095,196
Capacity Payments of CTBCM plants	389,366	393,747	397,091	359,703
Capacity Payments after implementation	1,259,666	1,490,304	1,664,988	1,735,493
Total Payments in PKR mn				
Energy Payments - pre CTBCM	1,996,432	1,738,790	1,706,946	1,863,900
Energy Payments of CTBCM plants	972,514	875,465	910,342	1,001,742
Energy Payments after implementation	1,023,919	863,325	796,604	862,158
Total Cost without CTBCM				
Capacity Payments/unit	13.41	14.40	14.90	14.32
Energy Payments/unit	16.23	13.29	12.33	12.74
Total Payments/unit	29.64	27.68	27.23	27.05
Total Cost with CTBCM				
Capacity Payments/unit	11.96	13.26	13.89	13.99
Energy Payments/unit	9.73	7.68	6.65	6.95
Total Payments/unit	21.69	20.94	20.54	20.94

Source: MSL Research, Nepra



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To arrive at our 12-months Price Target, Multiline Research uses multiple valuation methods which include: 1). DCF methodology, 2). Relative valuation methodology and 3). Asset-based valuation methodology.

Rating Expected Total Return
Buy Greater than 15%
Hold Neither Buy nor Sell
Sell Less than and equal to -5%

 $\begin{array}{lll} \text{Risk Rating} & \text{Parameters} \\ \text{High} & \beta > 1 \\ \text{Medium} & \beta = 1 \\ \text{Low} & \beta < 1 \end{array}$

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