

Detailed Report

Tuesday, 12 December 2017

Sector Update

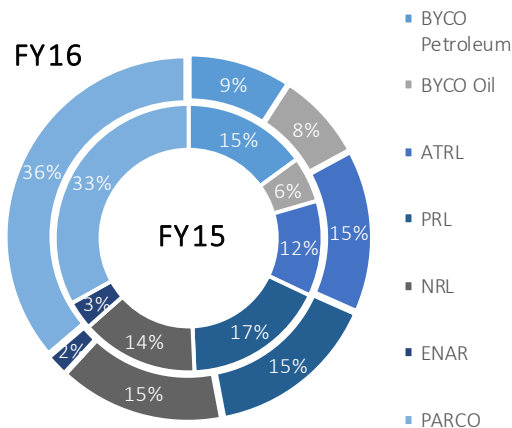
FO Consumption in Pakistan

mn Mtons	FY15	FY16
Power		
HUB/NAROWAL	1.93	2.04
KAPCO	1.20	1.09
KEL	0.58	0.60
PEPCO	2.15	1.75
Other	2.60	1.99
Total Power Sector	8.46	7.49
Industry		
Cement	0.03	0.13
Others	0.71	1.34
Total Industrial Sector	0.74	1.46
Total FO Sales	9.26	9.00
PSO FO Sales	6.11	6.33

FO Production - local and imported

mn Mtons	FY15	FY16
Refinery FO Processed	2.95	2.89
Total Imported	6.25	5.84
Total FO sales	9.20	8.73

Refineries FO market share



Source: Pakistan Oil Report 2015-16, Energy Yearbook 2015

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Pakistan Energy Sector

'The Curious Case of' FO imports;

Closure of FO plants, Future of Pakistan Energy Sector at risk

The recent decision by government to close down Furnace Oil (FO) based Independent Power Producers (IPPs) as a way to improve country's widening external account imbalances and lower the cost of power. While the decision to close down FO import and subsequently FO based IPPs; seems on right track in our view, but this decision has far reaching consequences on not just IPPs but also on entire energy chain including OMCs, Refineries and E&Ps. For OMCs and in particularly PSO will be highly effected by the decision as FO contributes nearly 20% to company's gross profit. For refineries (ATRL, NRL, BYCO and PRL) produce nearly 62% of the total processed FO; accounting for nearly 20%-35% of the product mix emphasizing the severity of the decision.

Since the initial announcement of decision, country faced a shortage of petroleum products which was later mitigated by government intervening and resuming operations of few FO based plant such as Attock Gen Power Plant. However, this was merely a matter of resolving inventories being held up by PSO and refineries and also to utilize the oil production from fields in KPK. Hub plant has been operating at a low load factor since the decision due to its supply to KEL and has since seen increase in dispatch as Hydel generation drops in winters while RLNG diverts to domestic consumers.

'Putting in our two penny worth' in a nutshell

The GoP decision to allow certain FO based plants to resume operations, is merely a temporary solution and was widely anticipated as to consume the inventories being held in storage and to meet-up higher LNG consumer demand during winters. However, in a medium to long run given the power capacity of 6,000Mw coming online (estimated by end of 2018), shutting down FO based IPPs will certainly bode well in terms of corrective measure to reduce external imbalances – we estimate USD 2.0-2.5bn net relief on import side, and overall power generation cost.

Refineries cornered? Not exactly

For refineries this means lower demand and hence lower supply, leading under-utilization of refineries capacities. Refineries currently produce almost 30-33% of the total FO requirement in the country while the rest is imported. However, we opine refineries will eventually end up operating at optimal level in the long-term primarily to consume up locally produced crude oil and secondly to keep up with rising locally produced POL products; which in absence will lead to a shift towards imports hence bringing the equation back to square one.

OMCs and E&Ps - Improved Liquidity to bode well for PSO

E&Ps face risk of closure of large oil fields located in KPK such as Nashpa and Tal block which supply heavy crude to ATRL. For OMCs and in particularly PSO, the decision led to a short-term concern over its FO inventories which was later mitigated with the resumption of Attock Gen, continuity of Hub Plant operations and PSO cancelling FO shipments for month of December and January. However, for PSO in long-term will lose a substantial portion of its FO sales (~6.9mnn ton), but will able to retain some portion roughly estimated 2.0-2.5mnn tons of FO sales.

The rationale behind the decision

Despite too much ambiguity on implementation, we believe the decision does have a solid ground to stand. There are few possible rationale which in our view may have led to this decision making. We highlight the following reasons:

- a) The sudden nature of enforcement may likely be to reduce the country’s import burden so that current account deficit could be lowered promptly.
- b) The GoP has recently inaugurated second LNG terminal with a capacity of 600mmcf in addition to 600mmcf already being imported by PSO. As LNG currently stands as cheaper source of power generation we believe GoP may be giving priority to LNG over FO as a source of power generation.

To state, with recent commencement of coal and RLNG based plants, Pakistan currently has excess generation to meets its demand in winter season thus making closure of FO plants viable. However, with LNG being diverted to local consumers in winters, FO plants may temporarily resume operations further fueled by recent LNG terminal failure.

A little background on FO supply and demand in Pakistan

Pakistan consumes nearly 9.0mn Mtons of FO yearly wherein power sector utilized nearly ~85% in power sector (83% in FY16). This brings FO demand to 1.5-1.7mn Mtons which is utilized by industries for captive power plants. To note, Hub/Narowal plant and KAPCO consume approximately 2.1mn and 1.1mn Mtons, respectively. Out of 9.0mn Mtons consumed, refineries produce nearly 30%-33% while the remaining is imported by PSO. Closure of Attock Refinery Limited (ATRL) will lead to a closure of oil and gas field in KPK such as Nashpa and Tal block.

Exhibit:

Total FO production (import and locally processed) – mn Mtons

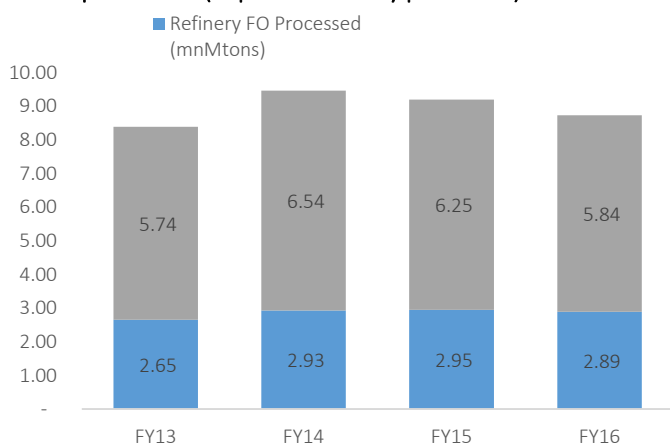
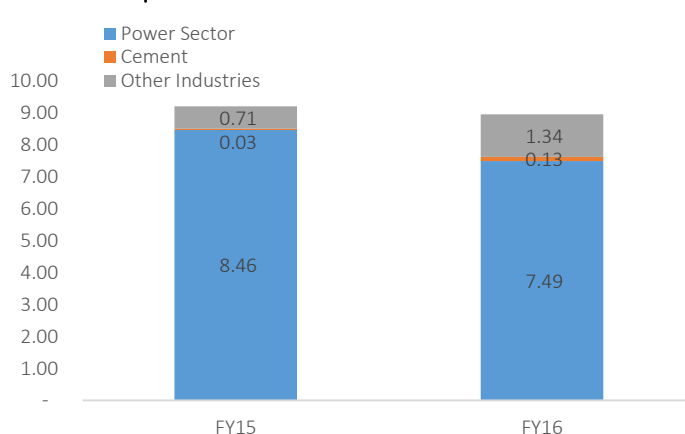


Exhibit:

Total consumption of FO in Pakistan sector wise – mn Mtons



Source: IGI Research, Pakistan Oil Report (2015-2016), Energy Yearbook 2015

Refineries

The implication on refineries as uncertainty prevails

The decision has led to uncertainty of future operations of refineries in Pakistan in the absence of FO demand from local IPPs. Refineries currently produce almost 30-33% of the total FO requirement in the country while the rest is imported. Under our expectation of temporary resolution of the matter and permanent ban on imports of FO gradually over the next 2 years, we believe refineries will be most affected but not lose out as demand from captive power, Attock Gen and Hub plant will be sufficient to meet refineries offtake at current levels.

Refineries may eventually end up producing at current levels

We expect refineries in the long term would end up processing oil at current level however, on short term basis 2Q-3QFY18 may witness depressed earnings due to decline in offtake. We believe, with current refining production of nearly 3.1mn Mtons, the GoP has to make way for consumption of this FO supply from refineries. Based on our analysis, we believe nearly 396MW of FO based Captive power plant single/dual both consume approx. 1.14mn Mtons of FO, Attock Gen Power plant with dependable capacity of 158MW consumes nearly 0.46mn Mtons of FO and Hub plant at a load factor of 50%-60% (1200MW) consumes nearly 1.73mn Mtons of FO (1.12mn Mtons at 30% load factor). Accordingly, if Attock Gen has to be operated to utilize local crude production and Hub plant to meet KEL demand and winter demand as LNG diverts to domestic consumer, we believe the demand would be sufficient to meet current production levels of refineries. In this scenario, GoP may only have to run 1,358MW (Hub plant and Attock Gen Power plant) of FO based IPPs. Also to note refineries have recently enhanced their capacities so any near term expansion to increase supply may likely be farfetched.

Exhibit:

Utilization of FO supply from refineries

	Plant Capacity (MW)	Mtons/day	Hub 50%	Hub 30%
Hub Plant	1,200	4,740	1.73	1.12
Attock Gen	158	1,250	0.46	0.46
Captive power FO Based incl. single/dual	396	3,128	1.14	1.14
Total estimated demand of FO			3.33	2.72

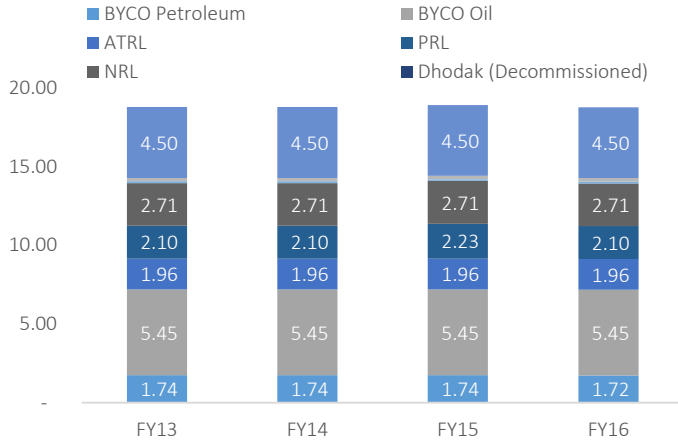
Source: IGI Research, NEPRA, PPIB, Pakistan Oil Report (2015-2016)

Reduced refinery throughput may not be sustainable in the long term

To note, refineries cannot stop producing FO and if that happens it means no production of other POL products may take place. So for refineries to operate at 100% capacity, FO will have to be produced at current levels. Further, if refineries production drops other POL products processed will suffer as well, which will require bridging the gap through imports that may not be a viable as the rationale behind the current decision is to curb import burden.

Exhibit:

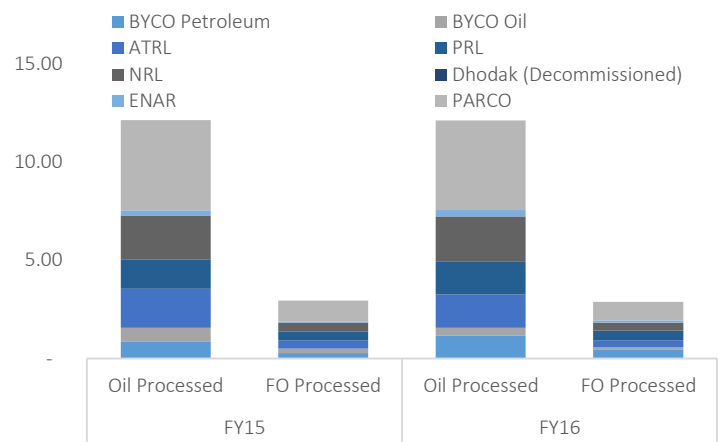
Total production capacities of refineries in Pakistan (mn Mtons)



Source: IGI Research, Pakistan Oil Report (2015-2016), Energy Yearbook 2015

Exhibit:

FO processed compared to total production – mn Mtons

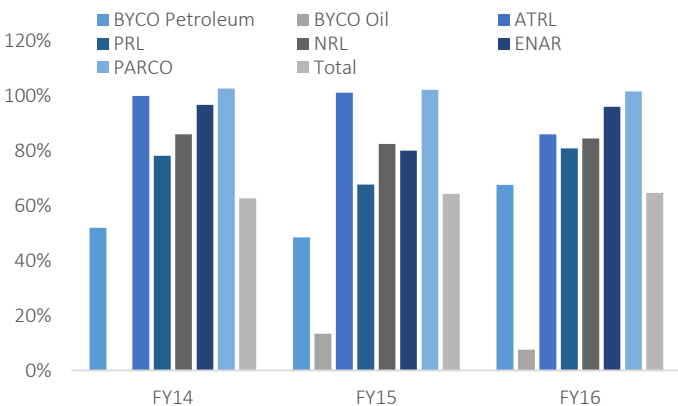


For some refineries producing FO below current levels may not be an option

To make matters worse, Pakistan currently produces heavy crude while the remaining is imported which is light crude. One of the drawback of refineries is that if heavy crude is utilized in refining activity the quantity of RFO produced will be higher compared to that produced from light crude by refineries. This implies that to fully utilize the local crude production, refineries which consume heavy crude will have to produce FO at current levels. To highlight, ATRL uses heavy crude extracted locally to refine POL products which accounts for 100% of the total crude oil intake for ATRL.

Exhibit:

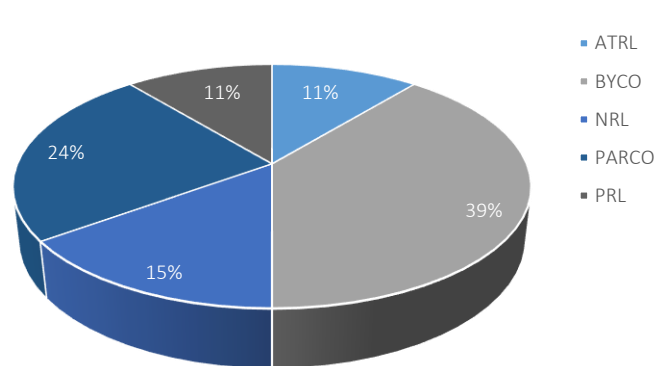
Except for PARCO, all refineries have operated below 100% capacity utilization



Source: IGI Research, Pakistan Oil Report (2015-2016), Energy Yearbook 2015

Exhibit:

Company wise contribution in total refining capacity of Pakistan in FY16



BYCO and ATRL produce maximum quantity of FO due to utilization of heavy crude

ATRL and BYCO both utilize heavy crude for processing of crude oil in to POL products. BYCO has the highest contribution in FO production (nearly 37% in FY16) to the tune of 0.43mn Mtons. PRL has nearly 30% contribution to FO production out of its total oil processed (0.5mn Mtons). NRL remains the lowest with 18% contribution (0.41mn Mtons). For ATRL, FO contributes nearly 22%-24% of the total oil processed amounting to 0.4mn Mtons. However we believe, due to consumption of heavy crude processed locally ATRL will be allowed to process crude oil at optimum level to fully utilize the local heavy crude to avoid a country wide energy crisis.

Nevertheless, all this may not be negative for refineries

In our view, this decision is highly unsustainable for the country due to the ripple effect it has had on the entire energy chain. Closure of refineries is also out of the question because if closed, Pakistan will have to import other POL products made by refineries, which would lead to further burden on import side instead of savings. With reduced FO production by refineries ruled out, we believe refineries will operate at optimum level. Now the excess production of FO that will be produced locally would stand somewhere between 1.4-1.6mn Mtons. This quantity stands as a difference between the total FO processed of nearly 3.1mn Mtons (capacity of nearly 3.5mn Mtons) and a FO demand of 1.5-1.7mn Mtons besides power sector. To meet the aforementioned excess supply, GoP may either a) operate few efficient FO based plants or b) produce bunker fuel from FO:

a) The resumption of FO plants to consume excess production

We believe that closure of ATRL may not be a viable solution as the oil and gas producing fields near ATRL will be closed down. Thus, we believe GoP may opt to run smaller FO based plants in that region such as Attock Gen Power Plant and Narowal plant for smooth operations of all sectors in the northern region along with Hub plant.

b) Production of bunker fuel from FO

It is pertinent to mention here that globally FO is utilized for only 30% of power generation while nearly 47% is utilized as a bunker fuel in ships and the remaining as refinery feed stocks. This option maybe considered for local utilization as bunker fuel is a type of fuel oil (close to the type of FO Pakistan consumes for power generation). Currently utilization of FO in transport sector stands at 2%. We believe with CPEC gaining traction, the demand for bunker fuel would most likely increase and Pakistan as a last resort could utilize excess FO to produce bunker fuel. However, margins on bunker fuel are lower compared to that in HSFO.

Refineries may end up operating at optimum levels once these short term hurdles are dealt with

We expect refineries to produce at optimum levels and supply to Hub plant which may be allowed to operate at a low load factor due to its supply to KEL. As per our estimation Attock Gen, Hub plant at 20%-30% load factor and captive power plant should suffice to generate a demand of 2.6-2.8mn Mtons. Accordingly, this would allow refineries to operate at current levels or slightly below. We expect that the GoP would still operate Attock Gen Power plant to utilize local crude production and Hub plant to meet KEL demand (at high load factor in winters as LNG diverts to domestic consumer). This along with local demand from captive power plants would suffice to allow refineries to operate at optimum level.

Exhibit:

Contribution of FO in total product mix - company wise

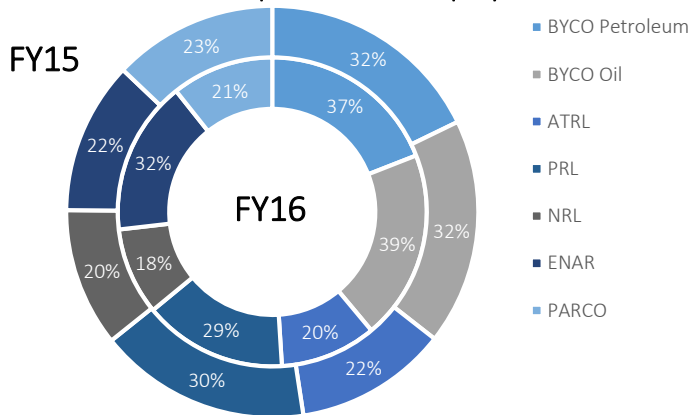
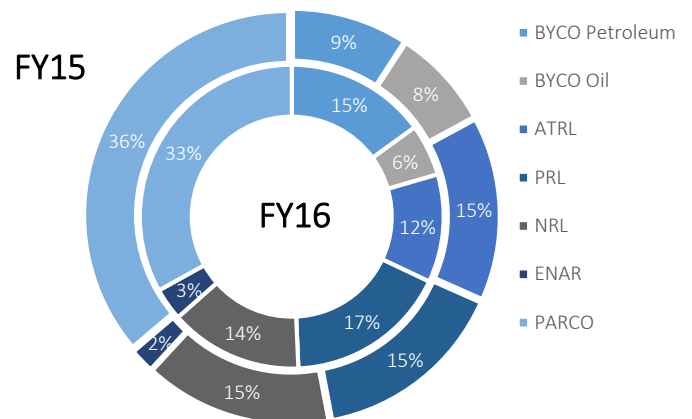


Exhibit:

FO market share of refineries



Source: IGI Research, Pakistan Oil Report (2015-2016), Energy Yearbook 2015

China’s move from coal to gas

Recently, China has announced that it will increase its LNG imports after several areas in northern China were left facing energy shortages due to declining temperature. For China LNG will play a vital role in shift away from fossil fuel which is on course to overtake South Korea as second largest LNG importer. In Oct-17 LNG reported a +48%YoY rise in imports. Consequently, the US Energy Department estimates LNG production to grow 4 times by 2019. Further on demand side, India’s LNG imports are expected to increase by nearly +60% to 30mn Mtons by 2020 which is currently the 4th largest importer of LNG. Pakistan also expects to increase its LNG imports to 30mn Mtons by 2022. As a result of global switch to LNG as means of power generation, LNG prices may swell up significantly in the coming years. For Pakistan this would mean that power generation through LNG would surpass or stand close to FO based generation. Consequently, FO plants may resume operations in a few years’ time.

PSO – Oil Marketing Companies

Where does this leave PSO?

As for PSO, the current hangover of inventories held shipments at port may well be resolved through temporary resumption of FO based power plants as Hub plant provides power to K-Electric (the plant was still operating at low load factor) while demand has increased in winter due to diversion of LNG supply to domestic consumers leading to operations at high load factor. This has in turn led to sell out of inventories which were piled up by PSO due to the ban imposed.

Exhibit:

PSO FO sales compared to total industry sales (mn Mtons)

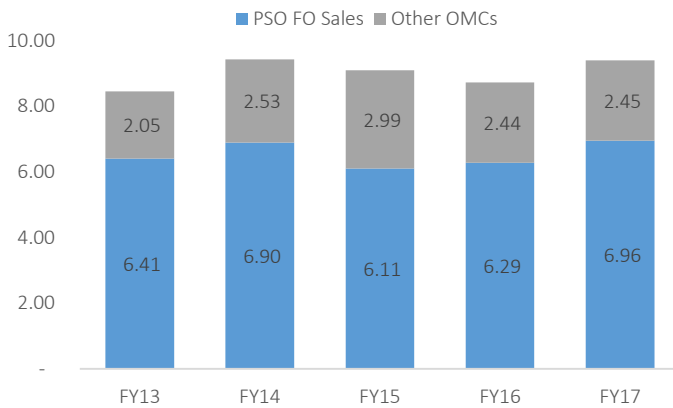
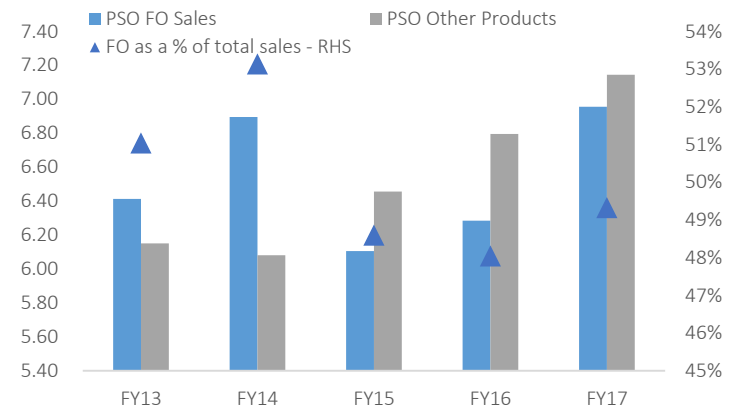


Exhibit:

Contribution of FO in total sales for PSO – mn Mtons



Source: IGI Research, Company Financials

As for long term ban on FO imports, we believe PSO will most likely lose FO sales, which during FY17 stood at 6.96mn Mtons. However, our base case scenario is that PSO will be able to retain FO sales of 2.5-2.7mn Mtons which is from the cash based IPPs and resumption of power plants in northern region to meet ATRL's production. Currently, PSO supplies nearly 16,000Mton/day (5.84mn Mtons/year) to WAPDA, GENCOs, HUBCO and KAPCO while 3,000Mton/day (1.1mn Mtons/year) is supplied to cash based IPPs. According to our estimates, FO sales of nearly 6.8mn Mtons contributes nearly PKR 20-21/share in PSO's earnings. However, we expect continuation of LNG will likely add PKR 7.5-8.0/share to PSO's EPS going forward.

Exhibit:

PSO FO supply customer wise

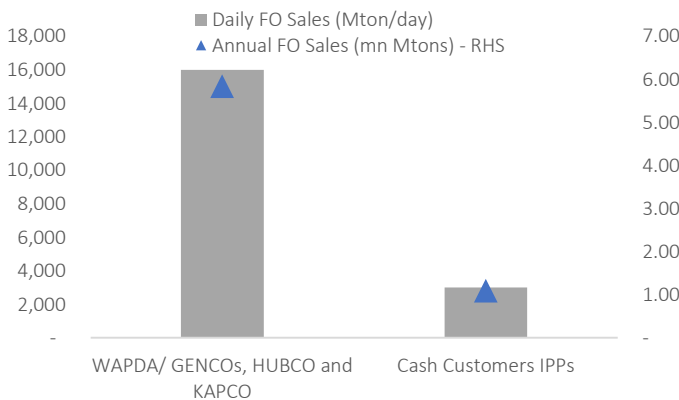
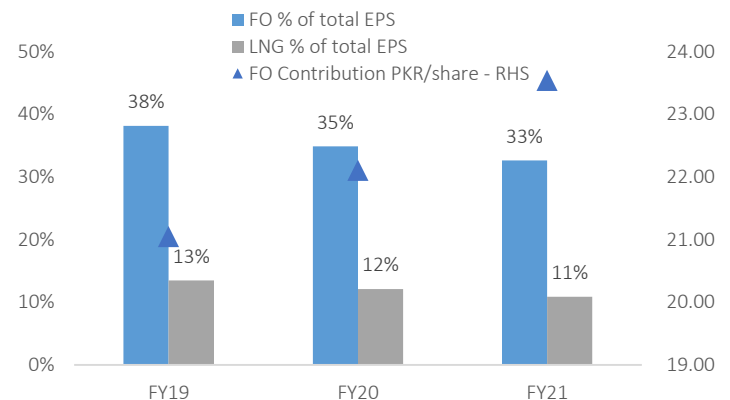


Exhibit:

EPS Contribution of FO compared to LNG



Source: IGI Research, Pakistan Oil Report (2015-2016), Company Financials

Easing cash flows may call for a multiple re-rating for PSO!

We believe, discontinuation of FO sales to IPPs comes with a blessing in disguise as this would mean no further accumulation of circular debt and as for LNG the amount stands negligible. Total circular debt for PSO as of Sep-17 stood at PKR 226bn of which PKR 197bn (PKR 181bn as outstanding) was from power sector and PKR 5.7bn from LNG. Total receivables excluding power sector stand at PKR 29bn. Once FO imports ease trade deficit and no further burden on circular debt, the GoP may likely clear PSO’s outstanding dues gradually over the years. This will in turn reduce short term borrowing and lead to a normalized working capital thus unlocking valuations for PSO! As for LNG, we view that as SNGP and SSGC purchase LNG by way of LCs, the pile up of circular debt on LNG would remain negligible as PSO sustains its import volume at 600mmcf.

Exhibit:

PSO's intrinsic value based on multiple re-rating

PKR/share	FY19E - EPS	Current P/E	Current Price
Current Assumption incl. FO	55.23	5.29	292.17
	FY19E - EPS	Market P/E	Intrinsic Value
EPS at FO sales of 2.5mn Mtons (excl. LNG)	42.03	9.07	381.18

Source: IGI Research, PSX

Exhibit:

PSO Receivables as at 30th Sep-2017

PKRmn	1QFY18
Due from Power Sector	197,500
LNG	5,700
PIA	13,300
PDC	9,600
Receivables	226,100
LPS	76,400
Total Receivables	302,500

Source: IGI Research, PSO

Continuation of LNG may likely be a possibility

As the GoP is entering in to new LNG import project to allow for all existing and new gas/RLNG based power plants to operate at optimum level, we believe PSO might be allowed to retain its LNG contract to compensate for loss of FO sales. To note, LNG income at 450mmcf of RLNG contributes nearly 6.7-7.2/share in PSO’s earnings and continuation of LNG would compensate for nearly 33% of income lost from FO (55% if PSO retains 2.5-2.7mn Mtons of FO sales). However, we have not incorporated LNG income post FY18.

Our assumption of reduced FO sales, improved liquidity along with sensitivities of likely scenarios

Based on aforementioned reasons, we expected PSO’s FO sales likely to drop, however with exclusion of FO sales from Government Based IPPs we believe PSO may receive the outstanding amount gradually over the next few years. With outstanding amount and improved cash liquidity in the absence of circular debt, PSO will most likely step out of a substantial negative working capital to a minimum or positive net working capital. As a result of improved cash flows we believe valuation to unlock for PSO calling for a multiple re-rating. Depending on how much FO sales will PSO retain, continuation of LNG will compensate about nearly 33%-60% of income lost from FO. Based on our assumption, PSO’s earnings will fall by nearly 20-26% over FY18-22F if PSO retains 2.5mn Mtons of FO sales. However, if outstanding receivables are recovered by FY20, we estimate PSO’s intrinsic value to stand at PKR 399/share. However, these estimates are highly dependent on when payments of outstanding due from power sector are received by PSO.

Exhibit:

PSO Sensitivity

PKRbn	FY18	FY19	FY20	FY21	FY22
Current Assumption					
FO Sales (mn Mtons)	6.80	6.80	6.80	6.80	6.80
Net Working Capital change	11.24	15.72	(5.72)	(11.73)	(11.18)
EPS	55.35	55.23	63.45	72.17	80.27
Target Price (PKR/share)	441.53				

Case-1: Reduced FO Sales without circular debt resolution

FO Sales (mn Mtons)	2.50	2.50	2.50	2.50	2.50
Working Capital	30.09	15.85	(6.01)	(10.79)	(10.20)
EPS	42.96	41.85	49.47	57.28	64.56
Variance (%)	-22%	-24%	-22%	-21%	-20%

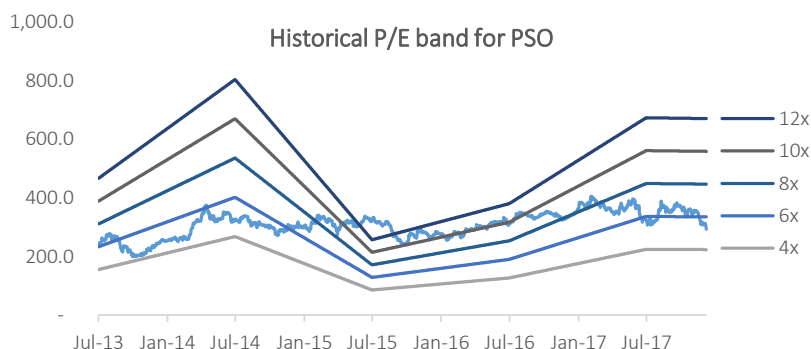
Case-2: If circular debt cleared by FY20

FO Sales (mn Mtons)	2.50	2.50	2.50	2.50	2.50
Working Capital	30.09	13.12	17.02	28.35	(4.96)
EPS	42.96	40.93	48.17	53.92	60.53
Variance (%)	-22%	-26%	-24%	-25%	-25%

Source: IGI Research

Exhibit:

PSO trading at FY18F P/E of 5.2x, below its 4 year average P/E of 6.8x



Source: IGI Research, PSX, Company Financials

Power Sector

The Power sector may not be as bothered as it seems

For IPPs, the matter may not be as intense as it seems as the IPPs from a financial point of view would stand less effected as the companies would still receive their Capacity Purchase Price (CPP) payments. However on individual basis some might benefit and some might lose. For HUBC, closure of plant or generation below 65% load factor would lead to loss in generation bonus which would lead to lower earnings and payout. NCPL and NPL would remain losers due to higher efficiency while LPL and PKGP would be gainer as they remain inefficient.

Exhibit:

Pakistan total generation capacity fuel wise (MW)

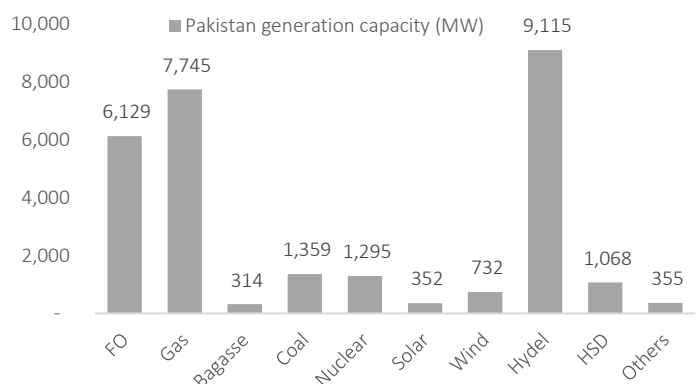
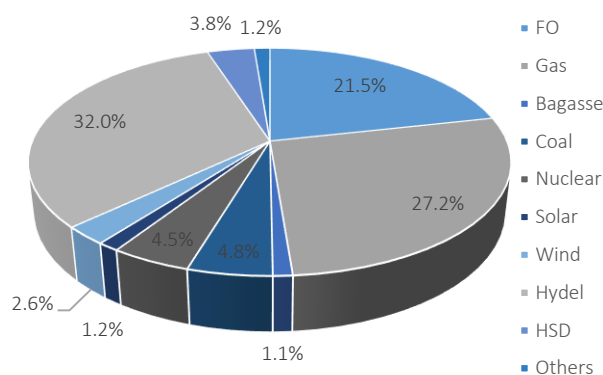


Exhibit:

Contribution in composition of Pakistan total generation capacity fuel wise



Source: IGI Research, NEPRA

However, from a broader perspective, with nearly 6,000MW of new coal and RLNG power plants coming online by end of 2018 (excluding Fatima Energy, QATPL, Sahiwal coal plant with a cumulative capacity of 2,618MW which have already commenced operations), we believe the country will be in excess of supply, which in peak demand stood at a deficit of 4,000-6,000MW. Thus, this means that the country can afford closure of nearly 6000MW (currently total dependable capacity of FO based plants in Pakistan stands at 6,129MW) of FO based plants without creating a panic across the country gradually over the next two years.

Exhibit:

Upcoming power projects

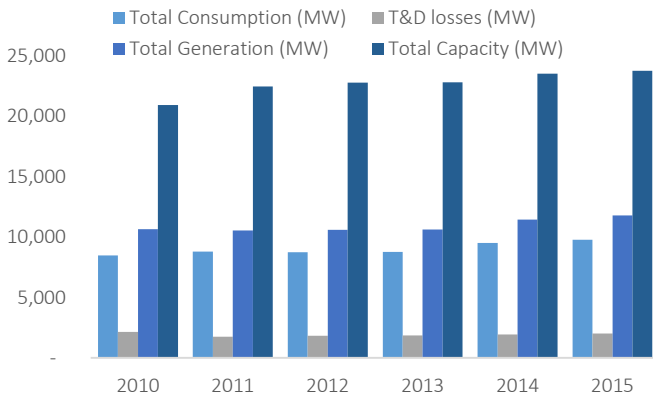
Year	Gross Capacity (MW)	No of Projects				
		CPEC	Coal	Hydel	RLNG	Total
2017	6,858	2	5	0	3	8
2018	2,503	3	3	0	2	5
2019	2,505	2	3	1	1	5
2020	1,980	2	3	0	0	3
2021	3,330	2	4	1	0	5
2022	870	1	0	1	0	1
2023	-	0	0	0	0	0
2024	2,312	0	0	4	0	4
2025	998	0	0	3	0	3
Total	21,356	12	18	10	6	34
Under Assessment	1,281	0	0	6	0	6
Total	22,637	12	18	16	6	40

Source : IGI Research, PPIS, NEPRA

Repercussions of adding new plants and removing FO based plants may well be widespread

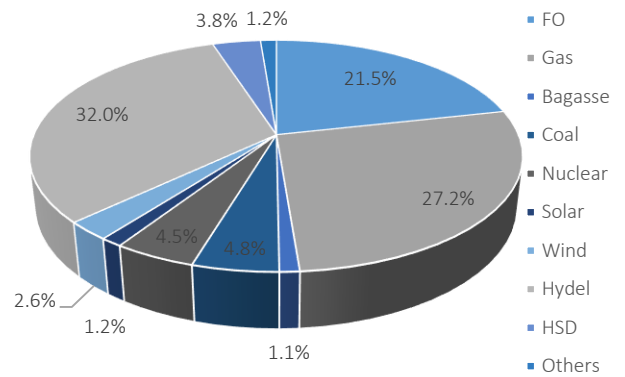
With the commencement of new power projects adding nearly 9,108MW by the end of 2019, Pakistan’s total dependable capacity including FO based plants would stand at 37,573MW while excluding FO based plant the capacity would stand at 31,444MW. On demand side Pakistan’s current power consumption stands at 12,221MW (during Aug-17 stood at 17,143MW) which has grown by at a 9Yr CAGR of +5% between FY09-FY17. Based on annual growth we expect power consumption to reach around ~15,000MW (~20,000MW in peak hours) by 2019 while total generation capacity including new projects coming online would stand at 37,573MW. The excess supply without FO based plants is estimated to stand around 11,444MW in peak hours, however this does not incorporate the additional demand to arise from CPEC and Special Economic Zones (SEZ).

Exhibit:
Pakistan’s total consumption and generation historically (MW)



Source: IGI Research, Energy Year book 2015

Exhibit:
Contribution in composition of Pakistan total generation capacity fuel wise



Generation cost to come down significantly

Once FO based generation is excluded, the fuel cost of generation would reduce substantially thus bringing down the average tariff to PKR ~9/kwh as new projects in the pipeline are mainly RLNG, Coal and Hydel based with generation cost ranging between PKR 4-7/kwh. Currently, the average fuel cost stands around PKR 5.13/kwh, which could likely come down to PKR 3.5-4.0/kwh by 2019 as new projects commence operations. Total captive power plant capacity stands at 1,516MW out of which nearly 17 are FO based with 250MW of new gas based captive power plants in the pipeline.

Exhibit:
Captive power plants total capacity and estimated generation cost including fuel and fixed costs

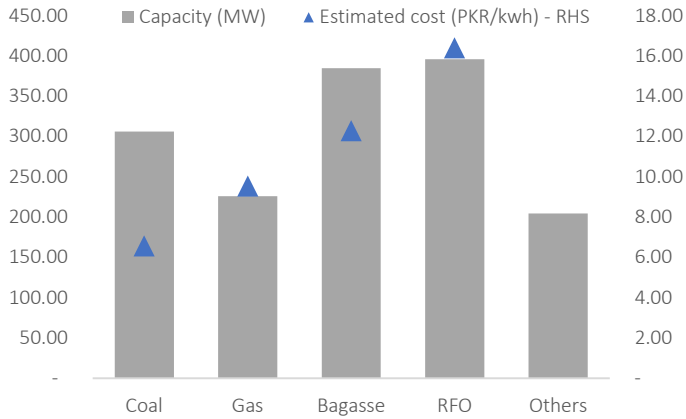
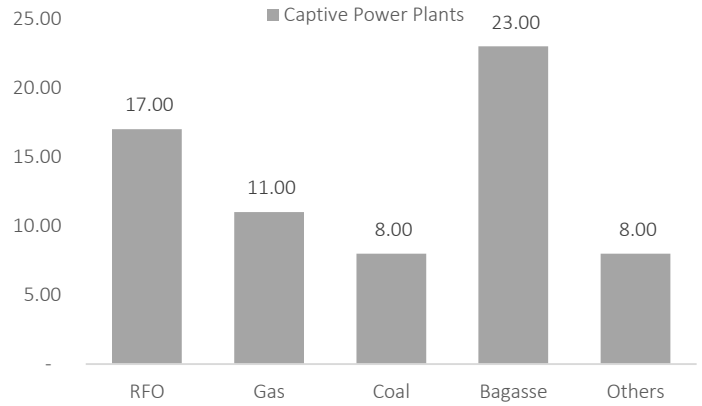


Exhibit:
Total Captive power plants – fuel wise



Source: IGI Research, NEPRA

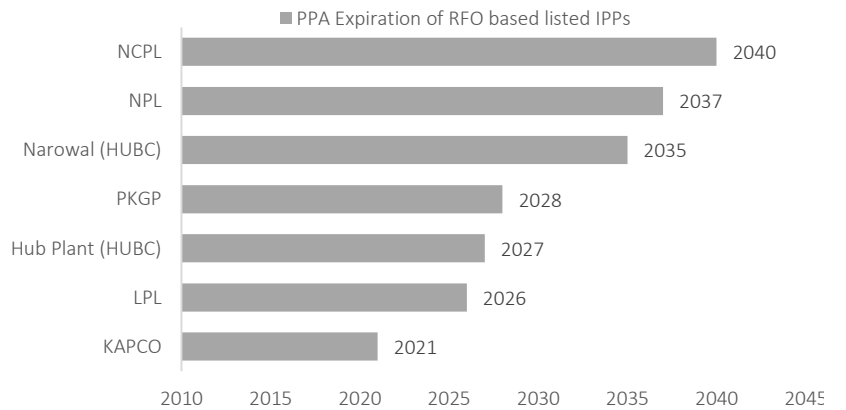
This decision may lead to non-extension of PPAs’ for FO based power plants

On the downside, in our view one of the most concerning factor for FO based IPPs in Pakistan may be the non-extension of PPAs for FO based power plants. This may also be a risk because once Pakistan is in excess of power generation, the additional burden of CPP costs may not be desirable for the country considering current economic factors.

Expiration of PPAs for listed companies

On the forefront, KAPCO’s PPA will retire in 2021 while Hub plant’s (HUBCO) PPA is set to expire in 2027. While for KAPCO other factors may come in to play which may lead to extension in PPA such as its ability to operate on LNG but for Hub plant it is most likely that this decision would lead to non-extension in PPA. For LPL, PKGP, NPL and NCPL the expiration date of PPAs stand at 2026, 2028, 2037 and 2040, respectively.

Exhibit:
PPL expiration date for listed FO based IPPs



Source: IGI Research, NEPRA

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