

## Petronet LNG

**BUY** 

**COMPANY INSIGHT** 

#### **PLNG IN EQUITY**

### November 20, 2017

## What's the plan for cash?

Our new valuation of ₹300 (earlier ₹270) fully discounts 20MT utilization of Dahej, 60% utilization for Kochi, limited opex growth and 5% tariff growth for the next decade. The Kochi terminal can't surprise unless the Bangalore pipeline section gets resolved. All focus should now be on future capital allocation as PLNG may find it difficult to find the next crown jewel after Dahej. We also conduct a deep dive on the Bangladesh gas market and think of it as a credible opportunity notwithstanding the political risks.

Competitive position: STRONG

Changes to this position: STABLE

### What beyond Dahej?

Lowest cost and best infrastructure connectivity make Dahej the LNG terminal of choice. PLNG should get 84% of incremental LNG volumes of 7.5MMT over the next four years. However, beyond 20MT, Dahej would face challenges on incremental volumes due to land availability constraints at the terminal. Scalability of Kochi beyond 2-3 MT is still a challenge given non-availability of pipeline on Bangalore section. To that extent, PLNG has to find its next mid to long term driver beyond its crown jewel Dahej, a difficult task.

### A problem of plenty!

Limited capex will drive FCF (~US\$450mn in FY19) growth of 8-10% beyond FY19. Given multiple terminals announced on both west and east coasts, opportunities to put a new terminal in India are limited. Financial stake in these terminals is likely to just match cost of equity. Thus, PLNG is exploring terminals in Bangladesh. Bangladesh is a gas economy (72% of energy mix) unlike India. Non-availability of alternatives and stagnant domestic production/depleting reserves make Bangladesh an attractive market.

### Bangladesh – a promising gas market but with political uncertainties

Bangladesh's demand-supply shortfall will increase to 78mmscmd by 2021. Skeptics doubt the country's ability to consume LNG at \$8-9/MMBTU. We believe diesel-based power plants, fertilizer units, and industrial consumers (~70% of gas consumption) would be happy to pay for expensive LNG in the absence of any other promising fuel. Politics is a bigger risk; the current dispensation is pro-India while the opposition is not.

### Valuations - possibly the last upgrade

We now build in peak volumes of 20MT for Dahej, which increases our TP to ₹300 from ₹270. Valuation upgrades hereon will be limited though our TP still provides 18% upside. Bangladesh would at best contribute ₹25/share. While the Indian gas story has many more legs, we advise playing it through city gas distributors as their business model is more scalable. IGL is now our top pick in the gas space. Capital allocation is the key risk for PLNG.

### **Key financials**

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Year to March	FY16	FY17	FY18E	FY19E	FY20E
Net Revenues (₹ mn)	272,230	246,160	293,473	333,504	368,557
Operating Profits (₹ mn)	16,455	25,923	31,377	37,334	47,938
Net Profits (₹ mn)	9,285	17,057	20,351	23,647	32,227
Diluted EPS (₹)	6.2	11.4	13.6	15.8	21.5
RoE (%)	15.3	23.8	23.4	22.8	27.8
P/E (x)	41.2	22.4	18.8	16.2	11.9
P/B (x)	6.0	4.8	4.0	3.4	3.2

Source: Company, Ambit Capital research

#### Oil and Gas

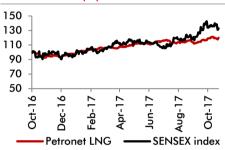
### Recommendation

Mcap (bn):	₹393/US\$6.1
3M ADV (mn):	₹1,076/US\$16.6
CMP:	₹255
TP (12 mths):	₹300
Upside (%):	18

#### Flags

Accounting:	GREEN
Predictability:	GREEN
Earnings Momentum:	GREEN

#### Performance (%)



Source: Bloomberg, Ambit Capital Research

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## What beyond Dahej?

Dahej terminal is the key strategic asset for Petronet LNG. Low regasification cost, good connectivity and a first mover advantage kept this terminal at more than 100% utilisation over the last decade. As Dahej reaches full utilization (peak capacity of 20MT) and the street starts discounting those volumes, the key question is "What beyond Dahej?" Multiple announcements of new capacities on both east and west coasts limit PLNG's ability to launch new terminals in India beyond Kochi and Dahej. Kochi terminal would have limited ramp-up unless the Kochi-Bangalore section opens up. New upcoming terminals on West and East coast too could have ~50% utilization, capping ROCEs at 12-14% vs ~30% for Dahej. Hence, taking financial stake in a new terminal in India may not be value-accretive.

## Dahej terminal to gain share but capacity will peak eventually

We estimate India's LNG imports record ~8% CAGR over the next four years (also aided by Kochi-Mangalore pipeline in South). Out of this, PLNG's Dahej terminal will capture most of the incremental volumes on west coast given its competitive advantages of low-cost re-gasification and well-connected pipelines. This would result in PLNG's Dahej terminal volumes increasing to 18MT in FY21 from 14.5MT in FY17 (5% volume CAGR). This would also mean that the Dahej terminal would reach full capacity utilization. From there it can add another 2MT of capacity (~14% of the existing capacity) given land availability constraints at Dahej (factored in our model beyond FY23).

PLNG's Kochi terminal does not have competitive advantages like that of Dahej over other gas terminals in India. Thus, the Kochi terminal stands on a similar footing as other new re-gasification terminals in India

- Its re-gasification charges are higher and similar to other re-gasification terminals in India;
- Pipeline connectivity for the terminal is still absent. The Kochi-Mangalore section of the pipeline has got delayed multiple times. It is now expected to get commissioned in December 2018, by when it would only be able to utilize 40% capacity. Further capacity utilisation is dependent on the Kochi-Bangalore section of the pipeline, which is yet to get "right of way" across its length.

Thus, the Kochi terminal would not be an obvious winner, unlike Dahej, which was blessed by first mover, infrastructure and regulatory advantages.

### Higher gas consumption beyond a point does not fully benefit PLNG

Regulatory and judicial actions can provide tailwinds to natural gas consumption in India. Two areas where this can lead to higher demand for natural gas are:

- Power sector: We expect power sector consumption of natural gas to decline from FY17 levels because of phasing out of the subsidy provided to gas-based power plants in FY17. In FY17, the gas consumption under the existing scheme was 5.6MMSCMD. In case the Government is able to come out with another scheme to revive these plants or renewable supply picks up (hence requiring peaking power demand), it will lead to higher demand for imported LNG.
- Replacement of natural gas as a feed stock for industries: Judicial activism to discourage fuel oil consumption (especially in NCR) by private industries is high. We have currently built in 10% CAGR in natural gas used by Industries. If all the fuel oil consumption by private sector is banned and they are forced to use natural gas, we expect the incremental demand for imported LNG would be ~4MMSCMD.



Exhibit 1: Complete substitution of fuel oil by the private sector could create demand of  $\sim$ 4 mmscmd

Particulars	Units	Value
Fuel oil consumption by private sector in India	MT	1,181,000
M cals/tonne of fuel oil	M cals/tonne	10,440
Kcal of Fuel oil consumption by private sector	M cal	12,329,640,000
K cal/SCM of natural gas	cal/SCM	8,740,000
Natural gas required	M SCM	1,411
Natural gas required	MMT	1.1
Natural gas required	MMSCMD	3.9

If both of these policy measures are implemented, the total demand for LNG would increase to 104MMSCMD in FY21, implying a CAGR of  $\sim 11\%$  over the next four years. However, PLNG's Dahej terminal would not be a major beneficiary of this given capacity constraints at Dahej.

## Excess LNG terminals capacity restrict new terminal opportunity

In the last few years, apart from public sector companies (like IOCL and BPCL), private like Adani, Swan energy and Hiranandani group have also shown interest in setting and operating LNG re-gasification terminals. As a result, India's LNG regasification terminal capacity will increase from 28MMTPA today to 53MMTPA by the end of FY21. Petronet itself will expand its capacity from 15 MMTPA to 17.5 MMTPA by FY19. Dahej will continue to remain the cheapest and most well connected terminal; hence we don't see any issues in it getting utilized before other terminals though its capacity will peak at ~20MT (after expansion). That said PLNG has very limited opportunities to put up a new terminal beyond Dahej and Kochi in the current demand-supply construct.

Exhibit 2: India has significant LNG regasification capacity

Projects	Capacity (mmtpa)	Capex (₹ bn)	Capex (US\$/tonne)	Status
Existing terminals				
PLNG- Dahej	15.0	66.7	59	Commissioned in April 2004 and expanded in 2009 and 2016
PLNG- Kochi terminal	5.0	42.0	129	Commissioned in April, 2013
Shell Hazira terminal	3.6	28.8	123	Commissioned in April, 2005
Ratnagiri Gas and Power- Dabhol (total capacity 1.5MMTPA; only 1.5MMTPA being utilised because of lack of backwater facility)	1.5			Utilised for production of power at the Ratnagiri plant
Total existing capacity	25.1			
New terminals planned				
Adani-GSPC: Mudra terminal	5.0	50.4	155	Expected to be commissioned in 4QFY18
Dhamra LNG terminal	5.0	50.0	154	Expected to be commissioned in FY19
IOCL-CPCL: Ennore terminal	5.0	52.2	161	Expected to be commissioned in FY19
H- Energy's FSRU at Jaigarh	4.0			Construction work has commenced
Swan Energy: Saurashtra coast (Gujarat)	5.0			Planning stage
ONGC: Mangalore terminal	5.0			Planning stage
Ratnagiri Gas and Power- Dabhol Expansion (backwater capacity)	3.5			Planning stage
Essar Haldia Terminal	1.0			Planning stage
H- Energy's FSRU at Digha	3.0			Planning stage
GAIL/GDF/Shell's Kakinada terminal	5.0			Planning stage
Hazira Expansion	5.0			Planning stage
GAIL's Paradip LNG terminal	4.0			As per media reports, project has been shelved
Petronet's Gangavaram terminal	5.0			As per media reports, project has been put on back-burne



# Growing domestic production and excess regasification capacities to pose utilization challenges for new terminal

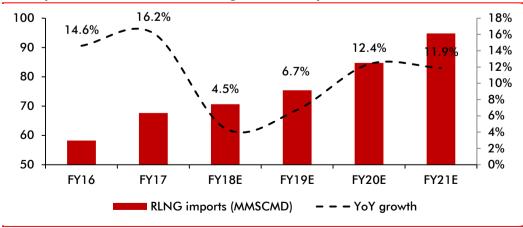
Against near doubling of LNG regasification capacity in India (and improvement in utilization of existing terminals), the demand for LNG would grow at a modest pace. Our gas supply-demand model indicates that the LNG imports into India would grow at ~8% CAGR over FY17-21 after assuming in a domestic production growth of 5%. City gas (CNG and PNG), refineries and petrochemicals would be the biggest drivers of growth while fertilizer sector consumption of LNG would remain flat and power would register a decline. Hence, the utilization of LNG terminals will fall from 74% in FY17 to less than 50% by FY21.

Exhibit 3: Refineries and fertiliser plants would be the biggest consumers of gas

Sector	India's RLNG consumption in FY17 (%)	RLNG consumption in FY17 (MMSCMD)	RLNG consumption in FY21E (MMSCMD)	CAGR (FY17- 21E)	Comments
Power	10%	7.1	5.1	-7.9%	Even at the current spot LNG price of US\$8.5/MMBTU, the cost of power generation from gas-based power plants is uncompetitive against coal. Further, with declining cost of power production from solar and wind, their status as a peaking power plant also being questioned. Without indirect support from the Government, we see no reason for increase in their PLFs for a very long time.  The decline in their RLNG consumption is because of phasing out of subsidy for these power plants under 'revival of stranded gas-based power plants' scheme. There may be some upside risks in case of any new Government incentivisation plan or peaking of power demand (led by pick-up in renewables).
Fertiliser	30%	20.7	20.7	0.0%	The revival of fertiliser plants (Gorakhpur, Barauni and Sindri) will require incremental LNG consumption. However, these plants are unlikely to commence production before FY21-22. In the interim, the incremental demand of the existing plants would be met by increased domestic production.
City gas distribution	12%	8.2	12.0	10.0%	City gas distribution (CGD) demand would be $\sim 10\%$ CAGR (growth in existing areas + new geographical areas) over FY17-21E. However, most of the gas would be supplied from incremental domestic gas production given its top priority in the gas allocation matrix. The industrial supplies by CGDs (also led by some regulatory support) would also grow at a similar rate, which would require RLNG.
Sponge Iron Steel	2%	1.7	2.0	4.0%	In line with steel production in India.
Miscellaneous (mainly refineries and petrochemicals)	46%	32.1	53.5	13.7%	As more and more refineries and petrochemicals convert their feed stock to natural gas, the consumption of natural gas will increase. As these do not feature in the domestic gas allocation list they will consume more RLNG.
Total	100%	69.8	93.3	7.5%	

Source: Company, Ambit Capital research

Exhibit 4: LNG import growth would remain healthy though multiple new terminals will impact the utilisation rates for regasification capacities



Source: Company, Ambit Capital research. FY20 growth is driven by commissioning of Kochi Mangalore pipeline.

### At 50% utilization, RoCE of new terminals is likely to be limited

Given high capex costs and lower utilization rates, RoCE of new terminals will be limited. As per media reports, PLNG has also been talking about buying stakes in other terminals such as Ennore, Mundra, etc. which may not turn out to be value accretive given lower RoCE<sub>nts.com</sub>

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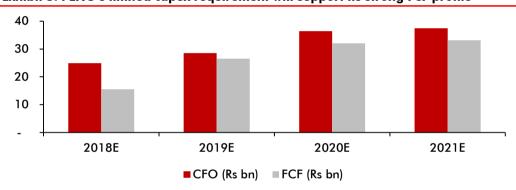
## The problem of plenty of cash!

PLNG will generate ~US\$450mn surplus cash in FY19, which will continue to grow at 8-10% every year in the absence of any capacity expansion. The opportunity to invest in new LNG terminals is getting limited due to aggressive plans by other PSU and private players. PLNG's management has indicated three avenues of capital allocation: a) increasing dividend payout to 20-25%; b) exploring terminals in neighboring countries such as Bangladesh and Sri Lanka; and c) promoting new energy projects such as LNG in buses or creating Electric Vehicle (EV) infrastructure. Apart from dividend payout as well as the Bangladesh terminal, none of the other projects are likely to take up too much cash. To that extent, examining Bangladesh becomes very important.

## Plenty of cash generation and limited opportunities

Over the next three years (FY18-20), PLNG would generate CFO of ₹92bn. However its capex requirement is limited at ₹13bn (relating to expansion at Dahej terminal by 2.5MMTPA to 17.5MMTPA). PLNG has been looking at three sets of opportunities for using the cash: a) increasing dividend payout to ~25%; b) acquiring stake in LNG terminals within India or putting up greenfield terminals in neighboring countries; c) entry into new areas like LNG in buses and providing infrastructure for EVs in India.

Exhibit 5: PLNG's limited capex requirement will support its strong FCF profile



Source: Company, Ambit Capital research

#### Media reports indicate lack of direction on capital allocation

**Stake purchase in domestic terminals:** PLNG is looking to buy stake in GSPC's Mundra terminal (Media link here) as well as IOCL's Ennore terminal (click here).

**Stake in overseas liquefaction terminals:** Media reports also indicate PLNG's intent to acquire stake in Qatari LNG projects (<u>click here</u>) as well as Yamal LNG (<u>click here</u>).

**Opportunities in EVs and LNG powered buses:** PLNG has also been working on some other project such as <u>charging infrastructure for EVs</u> and <u>LNG powered CV's</u>. We believe these projects are at an early stage and financial implications are not yet known to take any view on these projects. Moreover, there projects are still subject to concept validation, regulatory approvals and execution challenges.

**Putting up overseas terminals:** PLNG has been looking at Bangladesh (<u>click here</u>) and Sri Lanka (<u>click here</u>) to put up LNG terminals as well. Both these projects are at advanced stages though Sri Lanka investment quantum is fairly limited given small capacity and limited ownership as part of JV.

#### Opportunities aside from LNG terminals in India are limited

PLNG could have chosen to invest in other areas of the gas value chain (like pipeline or owning a city gas distribution license). However, PLNG's promoter, GAIL, is already present in these areas and has aggressive investments plans. Moreover, operating these assets requires a different skill set. To this extent, investment opportunities in LNG terminals will ensure that PLNG "does what it is best at"; i.e. establishing and operating an LNG terminal.

Bangladesh is going to be a large investment which requires a little better understanding; we look at the attractiveness of Bangladesh's gas economy, potential for LNG import into the country and the competitiveness of PLNG's LNG-terminals in Bangladesh in the next few chapters.



# Bangladesh: Totally dependent on natural gas and this will not change

Easy availability led Bangladesh to rely heavily on natural gas. Most of the power, transportation and household energy needs of the country are designed to rely on natural gas. Non-availability of alternative sources of energy domestically and requisite infrastructure required to support them would push the government and the regulators to continue to favour natural gas. Share of coal would rise from current negligible levels though there are many environmental challenges to it. Similarly, power imports from India, currently at 660MW, will increase (through commissioning of new transmission lines) but it will not materially change the country's energy mix.

## Natural gas in the mainstay of Bangladesh

Natural gas is the dominant source of energy, contributing nearly  $\sim 3/4^{\text{th}}$  of its primary energy demand. The current natural gas production in Bangladesh is 76 MMSCMD, however this is way short of the domestic gas demand of 102MMSCMD. The shortage has increased over the years as the production of domestic gas has failed to keep pace with demand. Over the last five years, domestic production of natural gas has remained flat while gas demand posted 8% CAGR. Bangladesh is now looking at importing LNG to bridge the supply-demand gap.

Exhibit 6: Gas is the primary source of energy in Bangladesh...

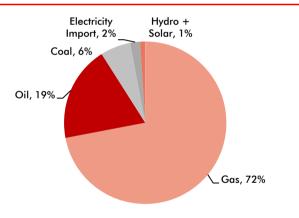
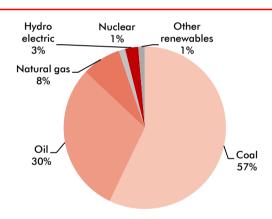


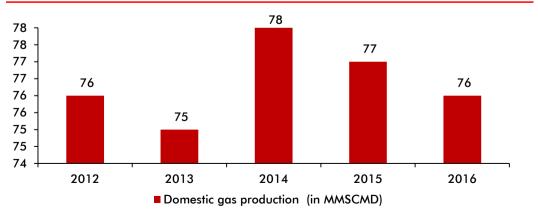
Exhibit 7: ...unlike India which is reliant on coal and oil



Source: Company, Ambit Capital research

Source: Company, Ambit Capital research

Exhibit 8: Domestic gas production in Bangladesh has been largely flat



Source: Company, Ambit Capital research

Out of 20 gas fields in the country, only four are operated by foreign players. These contribute  $\sim 60\%$  of the total gas production.



Exhibit 9: Private sector gas fields constitute 60% of gas production in Bangladesh

Gas filed	Year ended June-16 production (MMSCFD)	Operator	
Private sector gas fields			
Bibiyana	1,200	Chevron	The largest supplier of gas to the national grid.
Jalalabad	270	Chevron	7 wells including 3 additional new wells drilled in 2015.
Moulvibazar	40	Chevron	The production is down from 110 MMSCFD. As production is declining, the operator is investigating ways to enhance or at least sustain the present rate of production.
Bangura	100	Tullow/ Kris Energy	Peaked at 120 MMSCFD in 2010. Two development wells have been planned to sustain the current rate of production, one of which was drilled successfully in December 2016.
Total	1,610		
State-owned gas fields			
Titas Gas	513	State	
Habiganj	225	State	
Kailashtila	72	State	
Rashidpur	58	State	
Fenchuganj	35	State	
Others	178	State	
Total	1,050		
Total gas production in the country	2,660		

Source: Company, Ambit Capital research

Apart from gas, other form of energy are either not present in the county (renewable) or have not been explored/promoted (coal and oil).

Exhibit 10: Other forms of energy in Bangladesh have not taken off

Particulars	Share in commercial energy	Particulars
		• Bangladesh has minable coal reserves of 2.5 billion tonne. However, the mining activity in the country has beer negligible. Hence, the associated coal ecosystem (railway connectivity and coal-based power plants) is also non-existen in the country. Coal contributes just 2% to the overall power generation in the country.
Coal	6%	At present, Barapukuria is the only active coal mine in the country. In the year ending June 2016, it produced 1.0MT or coal. The coal extracted from this mine is mainly used to fuel the only coal-fired 250MW power generation plant in the country located at Barapukuria.
		The rest of the coal requirement is imported from Australia and Indonesia.
		<ul> <li>Oil exploration is very limited in Bangladesh. Its oil production has been stagnant at 4.0MT from the last many years while the oil consumption has increased to 13MT in 2016, growing at 5% CAGR over the last five years.</li> </ul>
Oil	19%	• The country has only one refinery of 1.3MT. However, Bangladesh's diesel and fuel oil based power plants have a capacity of 1,908MW (20% of the total power generation capacity), for which the feed stock is imported from India and other neighbouring countries.
Electricity import from India	2%	At present, Bangladesh imports 660MW of power from India, through two transmission lines (500MW is transmitted to Bangladeshi power grid through Bheramara and the remaining 160MW through Suryamaninagar).
Renewables	1%	Bangladesh has found some success with off-grid rooftop solar systems. However, the wind and power plants have been a non-starter in the country because these required large quantities of land, which is very a scarce resource in densely populated country like Bangladesh.
sector		• The Kaptai hydropower plant, built in the 1960s, had a production capacity of 230MW, but only produces 100MW.
		The electricity produced from wind power is negligible.

Source: Company, Ambit Capital research

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Exhibit 11: Coal production in Banaladesh in minuscule...

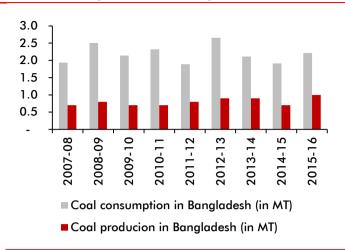
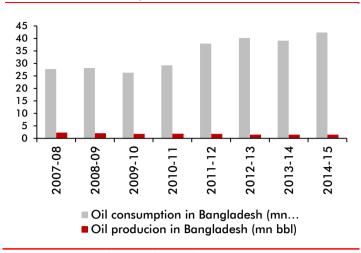


Exhibit 12: ... so is oil production



Source: Company, Ambit Capital research

## Outlook for domestic gas production is not so conducive

The outlook for domestic gas production in Bangladesh is not great. Bangladesh has not been able to discover new gas fields in the last 10 years. At present Proven + Probable reserves (P2) are 27.1TCF. Of this, Bangladesh has already explored 14.2TCF, implying remaining reserves of just 12.9TCF. At the current rate of exploration, the reserves (P2) would last for only 13 years.

It is highly unlikely to find large new gas fields given:

- Inadequate initial seismic data, small blocks, highly subsidized domestic gas produce and high corruption in the country which don't excite global exploration players;
- Lack of locally available technology for offshore drilling; and
- Onshore exploration has been restricted to simple and easy to find anticlinal fold structures and no steps have been taken to explore the difficult to find and subtle gas pools.

In the latest natural gas bidding rounds (held in 2013) hosted by PetroBangla, only two companies summited bids. As the existing producing fields mature, it is unlikely that Bangladesh would be able to increase its domestic gas output from the current levels. We expect gas production to remain flat over 2016-2021.

## Potential for other forms of energy too is limited

Prospects of other forms of energy taking over natural gas in Bangladesh are low. Not only does Bangladesh lack minerals (coal, crude) it also lacks adequate infrastructure (coal-based power plants, crude refineries) to enable imports of these minerals. The scenario is unlike to change as the table below outlines.



Coal

Oil

#### Exhibit 13: The prospects of other forms of energy in Bangladesh are limited

## Particulars Particulars

# • The domestic production of coal is unlikely to improve significantly from the current level. In the wake of depleting gas reserves in the country, Bangladesh is promoting coal-based power plants aggressively. As per Bangladesh's power system development plan (2010), it is planning to have an installed power sector capacity of 40,000MW by 2030, of which 50% would be coal-based capacity.

- The biggest challenge in setting up these power plants would be setting up the coal-related infrastructure for these plants given its topography; mostly forest area and high population density.
- These power plants would be set up, financially and technologically, in collaboration with foreign players and the coal required for these power plants would be imported.
- Environmental problem associated with the coal-based power plants are another major impediment. Bangladesh has been badly affected by the greenhouse effect and global warming. Locally, sensitivity to environmental is very high. For example, the proposed 1,320MW Rampal coal power station (the largest among the power plants proposed) situated in Sundarbans (a UNESCO world heritage site; the largest mangrove forest in the world), has drawn the attention of green experts globally. UNESCO claims the environmental impact assessment of the project is questionable. Similarly, there have been many demonstrations by the locals across Bangladesh claiming the project would lead to land dispossession, catastrophe in landscape and loss of livelihood around the region.
- No major oil fields are expected to come up for production in the coming future. The Government is also not planning any new diesel or fuel oil power plants.
- Import of gas from neighbouring countries has made little progress in Bangladesh. Imports from Myanmar have not been successful mainly due to their domestic demand for gas.
- Gas imports from other countries

  The Bangladesh's Government has an intention to extend TAPI (Turkmenistan-Afghanistan-Pakistan-India) gas pipeline to Bangladesh. However, given the India's future demand for natural gas, it may be difficult for India to allow substantial amount to Bangladesh. Additionally, no credible work has yet happened on the pipeline alongside the geopolitical risks the pipeline has to face.
- Power imports from India would increase (at least India would push for it, given its excess generation capacity and ample coal availability). The current transmission lines are operating at full capacity, hence new transmission lines would be required. India is constructing a new transmission line from 750MW Bongaigaon power plant. In any case, if the transmission capacity is doubled by 2021, it would meet only 8-9% of the power requirement of the country.

Renewable sector

Bangladesh has set up a "500MW Solar Power Mission", even if successful, this would be less than 2% of the total electricity produced in the country.

Source: Company, Ambit Capital research

Hence, it appears that natural gas would continue to be the most prominent source of energy in the country. Although its share in the energy mix would decline as more coal-based power plants comes on stream over the next decade, this would be aradual.



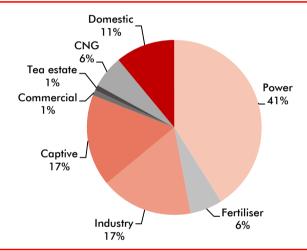
# LNG will find demand across key sectors in Bangladesh

All the key gas consuming sectors in Bangladesh are getting gas at less than their requirement. On top of that, energy demand would only grow at least in line with GDP. Overall energy consumption is expected to double by 2030 from current levels (as per power sector plan), resulting in 6.2% CAGR. The power sector would be the biggest user of LNG. Diesel-based power plants, fertilizer units, industrial and captive consumers would also become significant users of natural gas. LNG is the best alternative for the country to fulfill its energy needs as the current infrastructure is well attuned to gas as fuel. The challenge however would be that LNG is 2.5-3x more expensive than domestically produced gas; hence bold steps (in the form of price increases) would be required to make LNG work in the country.

## Natural gas is highly subsidized in Bangladesh

Power sector is the biggest consumer of gas in Bangladesh, accounting for 41% of total consumption, followed by industry and captive power, which consume 17% each. Fertilizer consumes only 6% of total gas production.

Exhibit 14: Power sector consumed 41% of the domestically produced natural gas in Bangladesh in 2016



Source: Company, Ambit Capital research

The entire gas value chain in Bangladesh is highly subsidized with all the exploration companies required to supply gas to PetroBangla at substantially cheap prices. For example, gas from Chevron is sourced at \$2.7/MMBTU.

This has resulted in inefficiencies in the gas consummation pattern and significant increase in the government's subsidy outgo on natural gas. This forced government to increase the natural gas prices in 2016 by  $\sim\!26\%$  for some sectors (excluding power and fertilizer sector) for the first time since 2009. The government is further considering another price hike of up to 130% for certain sectors.

We believe as LNG starts coming in the government may push all the industrial/commercial, fertiliser and captive power consumers to LNG while the economically sensitive segments such as power, CNG, and domestic fuel may continue to be on cheaper domestic gas (quite similar to India).

## Gas demand would post 9% CAGR over the next five years

Our natural gas demand-supply model indicates natural gas demand in the country would increase to 145MMSCMD by 2021, while domestic supply would remain flat at 76MMSCMD, indicating a domestic shortfall of 78MMSCMD by 2021.

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Exhibit 15: Natural gas supply gap to increase in Bangladesh

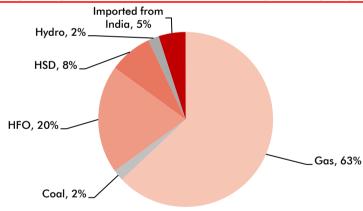
MMSCMD	2015	2016	2017E	2018E	2019E	2020E	2021E	Comments
Total domestic gas production (A)	77	76	76	76	76	76	76	Mature existing fields + no new upcoming fields
Gas demand								
Power	41	50	55	58	59	71	83	Replacement of liquid fuels + upcoming gas plants
Fertiliser	9	9	9	9	9	11	13	Rising imports and high subsidies to move the fertiliser sector towards LNG
Industry	13	13	14	16	17	19	21	Unreliable grid power forces usage of liquid fuel backups + high cost power makes LNG at \$8.5/MMBTU competitive against current tariffs.
Captive	14	14	15	14	14	16	17	Allotment of new captive connections + demand from new industrial parks.
Commercial	1	1	1	1	1	1	1	
Tea estate	-	1	1	-	1	1	1	
CNG	4	5	4	4	4	4	5	New vehicle additions + conversion of existing vehicles
Domestic	9	10	10	11	11	12	13	New PNG connections
Total gas demand (B)	91	102	109	113	116	135	154	
Short fall in domestic gas production (B-A)	14	26	33	37	40	59	78	To be meet through LNG

## Power (41% of total gas consumed in 2016)

Bangladesh's power sector is highly dependent on natural gas. Of the total capacity of 13K MW, almost 63% uses natural gas as feedstock.

Power plants using diesel and fuel oil (liquid fuels) constitute  $\sim$ 28% of total installed capacity. All the rental power plants (to give the relief for the interim period till large base load projects could be installed) in Bangladesh are based on liquid fuels.

Exhibit 16: Gas power plants constitute 63% of installed power capacity in Bangladesh



Source: ADB, Ambit Capital research

The power sector would require incremental gas allocation:

- To fill the current unmet demand (~8GW) The present peak power demand in Bangladesh is ~9GW, which is 20% more than the peak power supply in the country. Given availability of a ready gas-based infrastructure, RLNG is the best available option to fill the gap in the interim. Increase in PLF of the existing gas-based power plants and the fuel requirement of new gas-based power plants would require ~16 MMSCMD of gas.
- Replacement of liquid-fuel-based plants These were set up mainly to bridge the shortage of power till the time new coal and gas power plants were commissioned. The entire fuel for thee plants is imported and hence the cost of production from these plants is high at ~9.0Taka/kwh. Further, these plants are also highly polluting. Recently, Bangladesh has announced tender process for 1k MW liquid-fuel-based rental plants. In case the entire liquid fuels get converted, it can create LNG demand of ~17 MMSCMD. LNG even at US\$9.0/MMBUT (vs recurrent price of US\$8.5/MMBTU) would be competitive with these power plants.

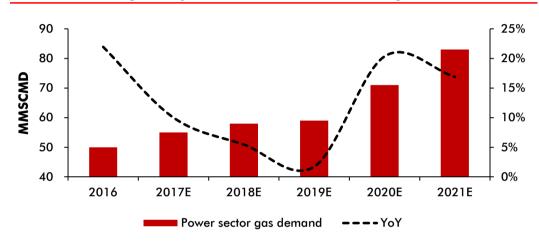


### As per Bangladesh Institute of Development Studies-

The possibility of converting these plants (rental based power plants) into gas-based plants could be explored as running these with liquid fuel will entail high generation cost in the long term. If the rental/quick rental plants are converted into IPPs, the plants can run on liquid fuels as long as sufficient gas is not available; and when gas would be available these can run on gas. The option would facilitate the utilization of the existing rental/quick rental capacity as IPPs for say another 10-15 years without investing much additional foreign exchange. The option is expected to reduce the generation cost of electricity as the IPPs are likely to have lower tariff and fuel flexibility. If the option is found feasible and profitable, agreements may be reached with the selected local entrepreneurs who have already made significant investments in the rental/quick rental plants to restructure their investments to turn their plants into IPPs.

Overall, the power sector alone can drive gas demand from 50MMSCMD in 2016 to 83MMSCMD in 2021, implying a CAGR of 11% over next five years.

Exhibit 17: The Bangladesh power sector's demand for natural gas

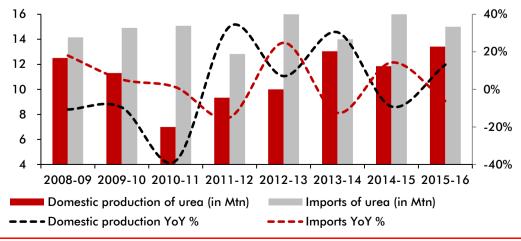


Source: Company, Ambit Capital research

## Fertilizer (6% of total gas consumed in 2016)

Bangladesh has six domestic fertilizer plants with a total capacity of ~3.0MT for which annual gas requirement is 9MMSCMD. However, at present only 5MMSCMD of gas is being supplied to these plants. Out of six plants, four are more than 40 years old and consume 2-3x more gas than the state-of-the-art plant. Thus, Bangladesh is forced to import urea to meet its domestic requirement. The import ratio has increased to over 50% in 2016.

Exhibit 18: Urea imports in Bangladesh constitute over 50% of domestic consumption



Source: Company, Ambit Capital research research@sageoneinvestments.com

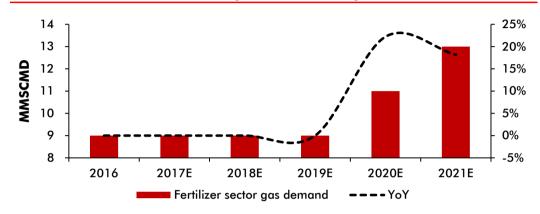


The cost of production of urea in Bangladesh is  $\sim Tk12/kg$ , but the imported urea costs  $\sim Tk30/kg$ . The imported urea is subsidized by the government and sold at Tk16/kg. The rise in imports of fertilizer is increasing the subsidy bill for the government, which stood at Tk2.0bn (US\$24mn) in 2016.

India's import requirement of urea is also increasing year after year as its domestic production has not been able to cope up with its demand. When India starts importing, the urea price market volatility will increase sharply, impacting Bangladesh's fertilizer import bill as well.

Thus, there is an urgent need being recognized by the government to meet the requirement of fertilizers by LNG. Urea produced from spot LNG (~US\$8.5/MMBUT) is very competitive as against import. The natural gas demand from fertilizers will increase to 13MMSCMD in 2021 from 9MMSCMD in 2016, implying a CAGR of 8%.

Exhibit 19: Fertiliser sector's natural gas demand in Bangladesh



Source: Company, Ambit Capital research

## Industry (17% of total gas consumed in 2016)

Bangladesh's rapid industrialization has resulted in significant demand for gas in the industrial sector. Gas is used in industries as a source of power, heating of boilers and in some cases as raw material. There is substantial untapped demand from the Industrial segment if there is assured supply of gas (even at prevailing LNG prices).

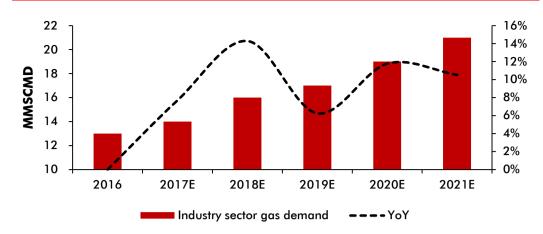
The grid power in Bangladesh is highly unreliable because of poor generation, transmission and distribution network which create voltage fluctuations, frequent outages and power cuts. This has led to industries resorting to creating small captive power units as backup. Most of these are liquid-fuel-based power plants (only a few units use gas at captive power plants). The consumption of liquid fuels by industry has grown at a CAGR of 55% over the last five years.

The cost of power generation by liquid fuels is significantly higher as compared to the cost of electricity generation by LNG. Further, these plants are also very polluting. LNG at US9.0/MMBTU is comparable to power generated through these liquid fuel plants.

To promote its industrial activity, Bangladesh has announced 100 economic zones, out of which 59 sites have been identified and work has started at 10. These industrial zones would require reliable power source to attract investments. For this, Bangladesh is planning to set up an LNG-based centralized power plant which could supply power to industrial clusters.

Conversion of existing liquid-based plants and upcoming new industrial units will increase the natural gas demand from this sector to 21MMSCMD in 2021 from 13MMSCMD in 2016, implying a CAGR of 10% over the next five years.

Exhibit 20: Industrial sector's natural gas demand in Bangladesh



## Captive (17% of total gas consumed in 2016)

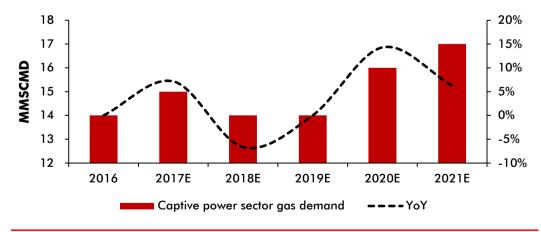
Captive power plants produce electricity for its owner's own uses or for a group. Bangladesh has  $\sim 1,800$  MW installed capacity generators which account for approximately 300 MMCFD gas requirements. Unfortunately, majority of the captive power generators are not energy efficient and there is scope for improvement in energy use in these plants. Most captive power plants (70%) use natural gas as feedstock and the rest are run on liquid fuels. The average efficiency of these plants is less than 30%.

After 2009, the government of Bangladesh imposed restrictions on new captive gas connections because of shortage of gas. As per a report in Financial Express, this has impacted more than 750 new industrial plants including more than 300 textile and ceramic plants, resulting in ~US\$5bn investments getting stranded.

In September 2016, the price of gas supplied to captive plants was increased by 100% to limit the use of gas by these players. This increased the cost of power generation itself by more than 30%. Bangladesh has further proposed a tariff hike of 130% for captive gas connections.

The potential for RLNG consumption by this sector is huge. Over the next five years the demand for natural gas by this sector will increase by 4% CAGR, implying natural gas consumption of 17MMSCMD in 2021 up from 14MMSCMD in 2016.

Exhibit 21: Captive sector's natural gas demand in Bangladesh



Source: Company, Ambit Capital research

## CNG (6% of total gas consumed in 2016)

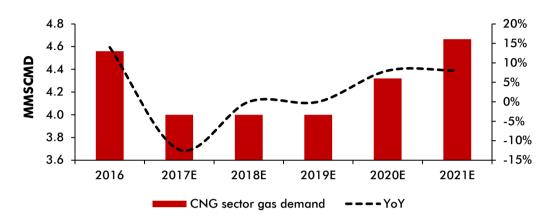
Bangladesh has significant air pollution issues, especially in the city areas. Recognising this, the government is promoting CNG usage. In the initial years, the consumption of CNG was very low and it did not affect the gas consumption policy, but now it is popular and pressurizing the gas consumption scenario of Bangladesh.



The low cost of CNG encouraged many cars owners to shift their vehicles to CNG. This compounded with low availability of gas resulted in Bangladesh resorting to closing gas CNG filling stations for four hours daily, which continues to date.

The gas consumption of this sector is expected to grow to 5MMSCMD in 2021 driven by vehicle additions and conversion of existing vehicles. Spot LNG is very competitive as against the prevailing petrol and diesel prices in Bangladesh. Bangladesh doesn't have any meaningful production of petroleum products and it relies on imports from India for diesel and petrol. Further, Bangladesh may prioritise CNG consumption over industrial/captive consumption. Hence, growth in CNG may be displacing domestic gas consumption elsewhere.

Exhibit 22: CNG sector's natural gas demand in Bangladesh



Source: Company, Ambit Capital research

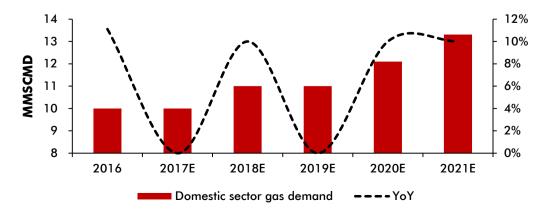
## PNG (11% of total gas consumed in 2016)

Bangladesh does not have local refinery capacity to meet its domestic LPG demand. This leaves it with no option but to provide PNG. Till 2011, the price of gas was determined based on the number of stoves rather than the amount of gas consumed in the country. This led to huge waste of gas in households. Later, the government introduced pre-paid gas meter to ensure proper usage of gas, but the installation process has been slow and less than 20% meterisation has been achieved so far.

Bangladesh is facing huge gap in supply and demand of natural gas in household sector. To cope up with the shortfall, the government is planning to set up domestic LNG bottling plants. These plants would produce LPG from the natural gas. Bangladesh has already awarded bottling capacities to private players and gas allocation to these players will start from 2025. However, given the gas shortage, it is highly likely that they would require rich LNG to operate at full capacity.

Over FY16-21, natural gas consumption by this sector would increase at 6% CAGR, implying gas consumption of 13MMSCMD in 2021.

Exhibit 23: PNG sector's natural gas demand in Bangladesh





# Petronet would be the third LNG terminal in Bangladesh

Realising the issues of domestic gas supply, Bangladesh has invited private players to build LNG terminals. Two terminals of 7MTPA capacity have already been finalised. Petronet is likely to be the third one and is still in negotiations with Petro Bangla on the commercial terms. Infrastructure and pipeline connectivity to these LNG terminals are being worked on. PLNG's terminal would be established near the existing pipeline and hence connectivity would not be an issue. The first two terminals are on a FSRU design, which means the capacities can't be expanded. The domestic demand shortfall would ensure that there is adequate demand for Petronet LNG's terminal (even if it is the third terminal in the country).

## LNG terminals in Bangladesh

Given the gas shortage and lack of development of new energy sources, Bangladesh has invited foreign players to establish and operate LNG terminals in the country. Till date three players have shown interest in the seating up terminal- Excelerate Energy (3.5MMTPA in Moheshkhali), Summit Energy (3.5MMTPA in Moheshkhali) and PLNG (5.0MMTPA capacity in Kutubdia Island expandable to 7.5MMTPA). In addition, Henergy (part of Hiranandani Group) has also shown interest in setting up a Terminal in the east coast of India (West Bengal) from where gas would be supplied to Bangladesh. Among these, Excelerate Energy's Moheshkhali terminal is at a very advance stage and is expected to get operational by April 2018.

Exhibit 24: PLNG's terminal would be the third in Bangladesh

Particulars	Excelerate Energy	Summit Energy	H-Energy	PLNG	
Physical details					
Capacity (MTPA)	3.5	3.5	3 MMTPA, out of which 1 MMTPA, would be supplies to Bangladesh	5.0MMT (expandable by further 2.5MMT)	
Location of the terminal	Moheshkhali	Moheshkhali	Digha (West Bengal)	Kutubdia Island	
Terminal type	FSRU	FSRU	FSRU	Land based	
Expected date of commissioning	Apr-18	Oct-18	2020	2022	
Project life	15 years, after which the company will transfer ownership to Petrobangla	15 years, after which the company will transfer ownership to Petrobangla			
Financial details					
Project cost (US\$ mn)	180	400-500		770	
Shareholders of the project	Excelerate Energy: 80% IFC: 20%	Summit energy: 80% GE: 20%	H-energy: 74% Excelerate Energy: 26%	PLNG: 100%	
Project Debt	70%				
Lead debt financer	IFC				
LNG storage capacity (cubic meters)	138,000	137,000			
Terminal use agreement	Signed	Signed		Not signed. Techno- economic feasibility study is underway	
Terminal charges (US cents/Mcf)	~47	~45		1.6x-2x the terminal charges for the other two terminals	
Securitisation					



Particulars	Excelerate Energy	Summit Energy	H-Energy	PLNG
Related Infrastructure				
Pipeline connectivity	Construction of 30" x 91 km transmission pipeline from Moheshkhali to Anowara in Chittagong has already been completed	Construction of 30" x 91 km transmission pipeline from Moheshkhali to Anowara in Chittagong has already been completed	The delivery point of gas to Bangladesh is Indian end point of the pipeline at Dattapulai (on India- Bangladesh border). This would have to be connected to Bangladesh's gas transmission system	A 26-km pipeline needs to be developed to connect to the terminal to Moheshkhali- Anowara pipeline
Customer details				
Anchor customer		Its own Meghnaghat II combined cycle power plant	Signed a heads of agreement for 1 MTPA with North West Power Generation Co (NWPGCL), a state- owned utility.	Proposed 1,000MW combined cycle power plant and the existing power plants in Raozan and Sikalbaha.
Gas supply agreement	15 years, 2.5MTPA from Qatar's RasGas			

## Strong demand will take care of regasification charges

PLNG would be the third terminal to come up in Bangladesh. It is a land-based terminal and is expected to get commissioned by 2022.

Many investors argue that PLNG's terminal charges are higher (1.6x-2x the terminal charges of Excelerate and Summit terminals) and, hence, the terminal would be uncompetitive. However:

- Excelerate and Summit terminals have a combined capacity of 7.0MMTPA and these terminals are not expandable. Hence, LNG demand beyond 7.0MMTPA would have to be met by PLNG. Our gas demand-supply model indicates that the domestic gas shortfall would ensure that PLNG's terminal operates at full capacity from the beginning.
- Moreover, the terminal charges as a portion of the overall landed LNG cost is very negligible (5%-10%) and hence, in case, the Bangladesh is able to generate demand for imported LNG, higher terminal charges would not a major concern.

To summarize, PLNG's competitive advantage of lower cost and pipeline connectivity in India would not be available to it in Bangladesh. However, the project would still be able to operate at full capacity and the higher terminal charges will not a deterrent as terminal charges are negligible in the overall pie of landed gas cost. The terminal can be connected to the Moheshkhali – Anowara pipeline (that connects the other two terminals to the national grid) by building a small 26km stretch pipeline.

Exhibit 25: PLNG's terminal will operate at full capacity from the beginning

			-				
MMSCMD	2015	2016	2017E	2018E	2019E	2020E	2021E
Gas demand (A)	91	102	109	113	116	135	154
Domestic production (B)	77	76	76	76	76	76	76
Shortfall in domestic production (C= A-B)	14	26	33	37	40	59	78
LNG							
Excelerate Energy					14	14	14
Summit Group					7	14	14
H-energy						4	4
PLNG							18
Total LNG imports (D)					21	31	49
Unmet gas demand (C-D)	14	26	33	37	19	28	29

Source: Company, Ambit Capital research

research@sageoneinvestments.com



## Gas pipeline infrastructure in Bangladesh is wide and well-connected

Bangladesh has a gas pipeline network of 2.6k km of transmission lines, 2.4k km of distribution lines, 16.7k km of feeder lines and 2.0k km of customer financed pipeline. Bangladesh's pipeline infrastructure is strong in north east, east and south east of the country. However, the pipeline infrastructure in Bangladesh does not connect the north-western and south-western parts of the country. The Chittagong area (the country's major industrial growth center) has been suffering from shortage of gas supply due to full capacity attainment of the Bakhrabad-Chittagong pipeline.

Exhibit 26: Existing gas pipeline infrastructure in Bangladesh



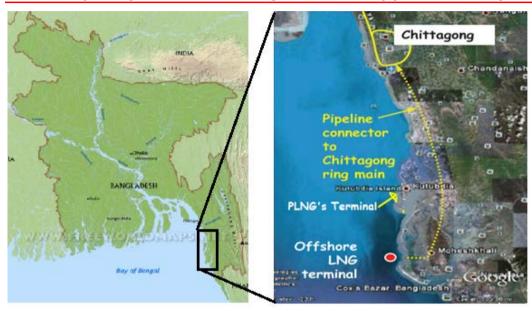
Source: Company, Ambit Capital research

Bangladesh would have to expand the gas transmission network to accommodate the upcoming LNG terminals. Since, constructing a gas transmission pipeline normally takes much longer time than constructing an LNG terminal, it is essential to start the construction of the transmission pipeline two or three years before the commencement of the construction of the LNG terminal.



For transmitting the regasified LNG from the two FSRU's at Moheshkhali to the national grid, Bangladesh is required to develop infrastructure. In this regard, GTCL (Gas Transmission Company Limited) has already constructed a 30" x 91 km transmission pipeline from Moheshkhali to Anowara, and construction of a 42" x 30 km gas transmission pipeline from Anwara to Fouzdarhat is underway. For supplying of enhanced quantity of regasified LNG, construction of another parallel 42" x 79 km gas transmission pipeline from Moheshkhali to Anwara is also underway. Further, two additional pipeline projects are being developed to deliver natural gas from Anowara to the rest of the country.

Exhibit 27: Upcoming LNG terminals in Bangladesh and their pipeline connectivity



Source: Company, Ambit Capital research

## **Project risks**

#### High price of LNG

The biggest risk to the project is the propensity of Bangladesh to consume LNG, which costs >3x that of the domestic gas supplied in the country. Bold steps (in the form of price increases) would be required to make LNG work. Bangladesh's government is already paying a huge subsidy bill for energy, and subsidizing LNG would make the matters worse for the government. As has been seen in India, subsidising the energy sector makes consumption inefficient. On the positive side, gas prices have been hiked twice recently across the sectors (excluding power and fertilizer) and a further 130% price hike is being proposed for some sectors.

In case the demand for gas at those prices does not materialise, the utilization risk for the PLNG is higher as compared to the other two terminals. In such a case, the entire investments can get jeopardized. In case PLNG is able to secure sovereign guarantee for minimum returns form the project, the project risk would reduce.

#### Change in political regime

The current political regime is considered to be pro-India, hence we think PLNG would be able to secure a terminal. However, complications may arise if the political regime in the country changes. BNP - the current opposition party - hasn't had great relations with India. If BNP comes to power it may overrule some of the decisions made by the previous governments.

In this regard, recent comments by PLNG's MD & CEO Prabhat Singh are comforting:

"While we will source gas (from international market) and supply (to utilities in Bangladesh), we are seeking some kind of payment assurances to cover for our investments in an event where we have to pull out of the country".



## Key assumptions and estimates

#### **Key assumptions**

Dahej terminal will expand its capacity by 2.5MT in early FY19. Volumes at Kochi will increase gradually and the terminal will reach 60% utilization after commissioning of the Kochi-Mangalore pipeline by December 2018. Further, re-gasification tariffs will increase by 5% p.a., which will drive revenue growth of 14% CAGR over FY17-20.

EBITDA growth would be even at higher at 22% CAGR over FY17-20 since an LNG terminal is a heavy fixed-cost model and the favorable impact of operating leverage is very high. Net earnings growth would be even higher at 26% CAGR over FY17-20.

**Exhibit 28: Key assumptions** 

Particulars	FY17	FY18E	FY19E	FY20E	Remarks
Dahej volumes	14.5	16.0	17.0	18.0	Dahej terminal: To ramp up faster given its competitive
Kochi volumes	0.2	1.1	1.5	3.0	advantages surrounding low cost and pipeline connectivity. The present capacity of the terminal is 15.0MT and it will expand by
Total volumes (TBTU)	14.7	17.1	18.5	21.0	another 2.5MT by early 2019. We expect the terminal to operate
YoY		16.3%	8.2%	13.5%	at full capacity in FY20.  Kochi terminal: Kochi-Mangalore pipeline is expected to get commissioned by December 2019. The terminal will operate at 3.0MT after completion of the pipeline.
Regasification Tariff (₹/TBTU)	1,346	1,413	1,484	1,558	Realisation increase in line with its agreement with its customers.
YoY		5.0%	5.0%	5.0%	Realisation increase in line with its agreement with its customers.
Revenue (₹ mn)	246,160	293,473	333,504	368,557	
YoY		19.2%	13.6%	10.5%	
EBITDA margin (%)	10.5%	10.7%	11.2%	13.0%	
YoY (bps)		16	50	181	Regasification is a high fixed cost model, the increase in volumes
EBITDA (₹ mn)	25,923	31,377	37,334	47,938	and realisations will expand margins.
YoY		21.0%	19.0%	28.4%	
PAT (₹ mn)	17,057	20,351	23,647	32,227	High on EDITO A An flow shoot on DAT
YoY		19.3%	16.2%	36.3%	Higher EBITDA to flow through PAT.

Source: Company, Ambit Capital research

## Ambit vs consensus

Our FY18 estimates are marginally below consensus (3% at EBITDA level and 1% at PAT level) mainly on account of our lower EBITDA margin estimates (~25bps). On the other hand, our FY19 estimates are marginally higher than consensus (4% at EBITDA level and 1% at PAT level) because of our higher EBITDA margin estimates (~30bps).

Overall, we believe our FY18/19 volumes and regasification relisations estimates are in line with consensus. However, we are building in operating leverage benefit because of PLNG's high fixed cost model, which has not been built in by consensus (as seen by flat EBITDA margin in FY19YoY).

**Exhibit 29: Ambit vs consensus** 

Particulars	Ambit	Consensus	Divergence
Revenue (₹ mn)			
FY18	293,473	295,657	-0.7%
FY19	333,504	330,004	1.1%
EBITDA margin			
FY18	10.7%	10.9%	(26)
FY19	11.2%	10.9%	31
EBITDA (₹ mn)			
FY18	31,377	32,370	-3.1%
FY19	37,334	35,922	3.9%
PAT (₹ mn)			
FY18	20,351	20,485	-0.7%
FY19	23,647	23,353	1.3%



# Capital allocation: The key valuation driver hereon

We have upgraded our TP to ₹300 (from ₹270) as we build in full capacity expansion at Dahej to 20MT and peak utilization by FY23. PLNG has strong growth visibility as Dahej and Kochi volumes continue to ramp up. We expect 5.3MT of additional volumes by FY20 from Kochi and Dahej on a very similar fixed cost structure, driving 18% earnings CAGR over FY17-FY21. That said, we think the opportunity for further upgrades is limited as we build in peak utilization for Dahej. An incremental worry for PLNG is how they would utilise the ever growing cash flows. Unless clarity emerges there, our valuation may remain capped at ₹300 (19x FY19E P/E).

## We upgrade earnings in line with recent quarterly results

Given the better than expected performance in 1HFY18, we have upgraded our FY18/19 estimates. Our FY18 estimates increase mainly because of higher-than-expected 'other income', while our FY19 estimates increase because of downward revision to our 'other expense' estimates. For both the years we have kept our volumes and relisations unchanged. Our FY18/19 estimates are upgraded by 4%/2%.

We have also increased our estimates beyond FY19 to account for peak utilization of the Dahej terminal at 20MT in FY23.

Exhibit 30: We increase our FY19 PAT estimate by 2%

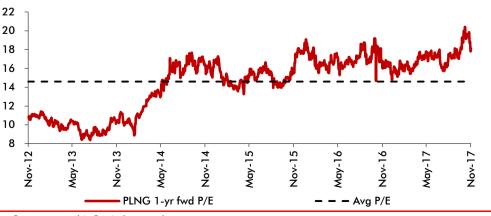
Change in estimates	New estin	nates	Old estir	nates	Change in estimates		
· ·	FY18	FY19	FY18	FY19	FY18	FY19	
Volumes (TBTU)	17.1	18.5	17.1	18.5	0.0%	0.0%	
Gross Revenue (₹ mn)	279,861	319,211	279,861	319,211	0.0%	0.0%	
EBITDA (₹ mn)	31,377	37,334	31,517	36,655	-0.4%	1.9%	
EBITDA margin	11.2%	11.7%	11.3%	11.5%	(5)	21	
PAT	20,351	23,647	19,507	23,167	4.3%	2.1%	

Source: Company, Company, Ambit Capital research

## Target price upgraded by 11% to ₹300

We upgrade our TP by 11% to ₹300 on account of: a) 2% upgrade led by an increase in our FY19 estimates; b) 5% upgrade because of changes to our long-term volume estimates; and c) 4% upgrade because of roll-forward of DCF date to November 1, 2018. This implies 19x FY19E EPS. This is justified given PLNG's strong earnings growth of 20% CAGR over FY17-19 and RoE of 23% in FY19. Earnings growth would be strong beyond FY19 also on account of 5% escalation in re-gasification tariffs.

Exhibit 31: PLNG is trading at 25% above its five-year average one-year forward P/E given improved visibility on volumes as well as 5% tariff escalation

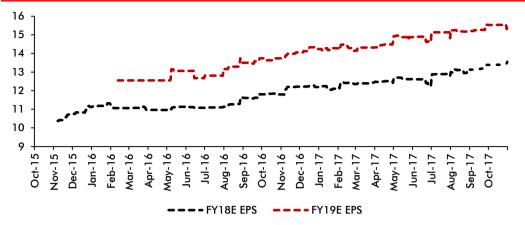




## Further upgrades would be limited

Over the past two years, there have been constant upgrades to the earnings estimates of PLNG. This has been largely been a function of market share gains by PLNG's Dahei terminal.

Exhibit 32: PLNG's earnings estimates have seen constant upgrades



Source: Company, Ambit Capital research

We believe this is our last upgrade (from volume perspective) as peak Dahej capacity is already built into our estimates. As discussed earlier, even if LNG imports surpass our base case estimate of 8% CAGR over FY17-21 because of a) revival of gas-based power plants and/or b) restriction on fuel oil consumption by the private sector in India (which can led to 11% CAGR in LNG imports over FY17-21E), PLNG would not be able to participate in the growth story given capacity constraints at Dahej terminal.

## Bangladesh – limited value accretion potential for shareholders

The financials details of the project have not been finalized, hence we have not built the Bangladesh project into our estimates and target price. However, we have built a DCF model for the terminal based on the recent trend in setting up and operating a land-based LNG terminal in other South Asian countries. The terminal charges for the Excelerate FSRU are ~US cents 47/MCF. As per global trends, the re-gasification charges for a land-based terminal is ~1.6x that of an FSRU. In such a case, our best case assumption for PLNG's re-gasification charges is ~US cents 75/MCF.

At our cost of equity of 16% (WACC of 13%), the project would have positive NPV of ₹49bn or ₹25 per PLNG share.

Exhibit 33: PLNG's Bangladesh regasification project would be value-accretive

Particulars		Details		Bangladeshi rupee		INR	
Particulars	Phase-I	Phase-II	Total	Phase-I	Phase-II	Phase-I	Phase-II
Construction							
Capital cost				62,273	21,795	48,450	16,958
Capacity (MMTPA)	5.0	2.5					
Commissioning	Apr-22	Apr-26					
Operating							
Life of the project (years)	30	30					
Re-gas charges in year 1 of commissioning (/MMBTU)				65.6	68.3	51.1	53.1
Variable cost in year 1 of commissioning (/MMBTU)				6.7	7.2	5.2	5.6
Fixed cost in year 1 of commissioning (mn/MMBTU)				114	184	88	143
Interest rate	8%	8%					
Profitability							
NPV			48,500				
PLNG shares (in mn)			1,500				
PLNG value per share (Bangladeshi rupee/share)			32				
PLNG value per share (₹/share)			25				



In case the regasification charges of the project are lower, at 1.2x Excelerate Energy's regasification charges, the IRR of the project would still be 12% and the additional value creation from the project would be ₹12 per PLNG share. On the other hand, if the regasification charges of the project are 2.0x Excelerate Energy's regasification charges, the IRR of the project would be ~38% and the value creation of the project would be ₹39 per PLNG share.

Exhibit 34: Profitability of PLNG's terminal under different regasification charge scenarios

Particulars	Scenario-I	Scenario-II	Scenario-III (Base case)	Scenario-IV	Scenario-V
Excelerate Re-gas charges (US cents/MMBTU)	47	47	47	47	47
PLNG's Re-gas charges as a multiple of Excelerate Energy's Re-gas charges	1.2	1.4	1.6	1.8	2.0
PLNG Re-gas charges in year 1 (US cents/MMBTU)	0.56	0.66	0.75	0.85	0.94
PLNG Re-gas charges in year 1 (Bangladeshi rupee/MMBTU)	66	77	87	98	109
IRR of the project	22%	26%	30%	34%	38%
NPV of the project (₹ mn)	22,696	35,598	48,500	61,402	74,303
PLNG shares (mn)	1,500	1,500	1,500	1,500	1,500
PLNG value per share (Bangladeshi rupee/share)	15	24	32	41	50
PLNG value per share (₹/share)	12	18	25	32	39

Source: Ambit Capital research

## City gas distributers, the better way to play Indian gas story

City gas distributors are a better bet on the India's gas story. In terms of scalability, these players have ample scope to grow multifold as the CGD story has just started in India. IGL and MGL are the most experienced and thus preferred players in the space. IGL and MGL's prolonged success in the CGD business reflects their ability to acquire more geographical areas. Incrementally, regulatory changes would also favor experienced payers like IGL and MGL to gain new geographical areas, providing more legs to their growth stories.

IGL is our top pick as it continues to benefit from regulatory and judiciary actions. IGL will report highest earnings growth in the Indian gas sector given conversion of app-based taxis to CNG, expansion into new territories, and regulatory actions to curb consumption of fuel oil/petcoke in NCR.



Exhibit 35: IGL and MGL are best placed to play the gas theme in India

Particulars	Description	PLNG	GAIL	GSPL	IGL/MGL	Gujarat Gas
	We expect increase	0	•	GCDI I I I	•	Gujarat gas has lower
Increase in domestic gas volumes	in domestic gas production largely driven by new fields of RIL and ONGC	Negative, as lower LNG would be required	Positive for GAIL	GSPL has lower share of domestic gas volumes and hence wouldn't be materially impacted by increase in supplies	Positive for IGL and MGL	share of domestic gas volumes and hence wouldn't be materially impacted by increase in supplies
		<b>-</b>				
Ability to capitalise on spot LNG	Spot LNG prices are likely to be low over the next 2-3 years	Kochi terminal can be ramped up quickly	GSPL to benefit more than GAIL	Best placed to capitalise on spot LNG given underutilised capacities, proximity to re-gasification terminals, and strong pipeline network in the industrialised state of Gujarat	Both of them have 14- 15% exposure to industrial customers and would benefit to that extent	Highly sensitive to LNG prices and would be a key beneficiary
			<b>-</b>	•		
Tariff risks	Regulatory concerns have abated	PLNG is least regulated	GAIL has more upside risks given recent changes in tariff calculation formulae as dictated by PNGRB	GSPL has more upside risks given recent changes in tariff calculation formulae as dictated by PNGRB	IGL's and MGL's margins are de- regulated	No tariff risks in near term
			<b>-</b>	•		
Scalability of business model	Scalability is measured in terms of penetration, capacity utilisation, and long-term growth potential	Limited scalability beyond 20MTPA in Daheį. Kochi terminal is capped by limited gas pipeline connectivity	Best on long- term capacity utilisation. It owns 70% of the country's pipelines which are nearly 50% utilised	GSPL is setting up cross- country pipelines which will scale up its business	Most scalable business model in gas value chain	Its presence in India's most industrialised state gives it unmatched presence in industrial CGD
	Depends on		<b>-</b>	•		<u> </u>
Competitive intensity	potential entry of new players and competition on tariffs/cut volumes for incumbents	Kochi terminal will face tariff competition from other terminals	Not likely to face competitive intensity in their pipeline businesses	Not likely to face competitive intensity in their pipeline businesses	Monopoly assigned by regulator	Gujarat Gas post consolidation has much better hold over competition
		<b>-</b>	•			
RoCE	Structural RoCE of the business and potential risks to the current RoCE	Gradual improvement in RoCE as Kochi starts getting utilised	Gradual improvement as the utilisation increases. Huge upside if recent PNGRB tariff formula is implemented	Likely to see 12-14% RoCE, in line with maximum allowed by PNGRB	Best possibility to have higher RoCE given their uncapped marketing margins	Lower than IGL/MGL
Overall						

## PLNG is cheaper than IGL/MGL for justifiable reasons

PLNG trades at a discount to its Indian city gas distribution peers in spite of similar return ratios and growth profiles. This is justified given the highly scalable business model for city gas distributors as compared to PLNG which is starved for growth beyond ramp-up of the Dahej and Kochi terminals.

Global peers are not directly comparable to other midstream players as most of them are in the pipeline business and have a steady flow of earnings. The other reason for Indian midstream companies to trade at a marginal discount to global peers is uncertainty related to contract enforcements. The current situation on long-term US LNG contracts exposes such risks.

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Exhibit 36: PLNG is cheaper as compared to city-based distributers and other global gas energy players

Companies	ADVT - 6m	Mcap	EV/	EBITDA	(x)		P/E (x)			P/B (x)			RoE (%)	)	CAG	R (FY17-	19E)
Companies	US\$ mn	US\$ mn	FY17	FY18E	FY19E	FY17	FY18E	FY19E	FY17	FY18E	FY19E	FY17	FY18E	FY19E	Sales	EBITDA	EPS
Petronet LNG	22.0	5,814	13.4	10.8	9.8	23.5	18.0	15.7	5.0	3.8	3.3	22.6	22.8	22.1	13%	17%	22%
Other Indian gas companies																	
GAIL India	23.4	11,679	11.2	9.6	8.8	18.0	16.1	14.5	2.1	1.9	1.7	12.1	11.8	12.3	8%	13%	11%
Gujarat Gas	0.9	1,800	16.9	13.4	11.1	43.2	29.6	21.7	5.1	5.8	4.8	11.7	21.1	24.2	17%	24%	41%
Indraprastha Gas	9.2	3,188	19.5	17.3	15.6	34.5	26.3	23.2	7.2	5.0	4.3	21.9	21.7	21.2	15%	12%	22%
Mahanagar Gas	3.7	1,647	15.9	13.1	12.4	27.0	21.8	20.6	6.2	5.3	4.7	24.0	24.9	23.5	10%	13%	15%
GSPL	2.7	1,799	12.0	10.1	9.3	23.1	18.2	16.6	2.7	2.4	2.1	12.0	13.4	13.3	13%	13%	18%
Median			15.9	13.1	11.1	27.0	21.8	20.6	5.1	5.0	4.3	12.1	21.1	21.2	13%	13%	18%
US gas companies																	
Energy Transfer Partners	1.9	19,366	46.2	9.0	7.6	21.9	27.8	17.6	0.6	0.6	0.8	3.5	5.4	7.1	94%	146%	11%
NuStar Energy	0.2	2,717	11.9	11.4	9.9	13.8	32.0	22.8	1.5	1.2	1.4	10.5	4.8	-	3%	10%	-22%
ONEOK	3.0	19,490	15.5	14.8	13.2	30.0	28.4	22.5	245.6	3.2	3.9	118.2	17.3	17.7	20%	8%	15%
Boardwalk Pipeline Partners	0.2	3,634	9.1	8.4	8.4	12.7	10.3	10.7	0.8	0.8	0.7	6.6	6.7	7.0	2%	4%	9%
Enbridge Energy Partners	0.3	5,723	9.3	10.4	10.2	25.3	17.2	15.0	1.2	1.3	1.3	5.4	11.7	17.8	-10%	-5%	30%
EQT	3.5	15,337	17.5	11.7	6.7	-	68.7	34.0	1.7	1.1	1.6	(2.0)	2.2	2.7	50%	62%	-
NiSource	0.9	9,174	12.3	11.6	10.7	25.2	22.9	21.3	2.2	2.0	1.9	8.9	9.2	9.3	7%	7%	9%
Energen	1.2	5,185	20.4	10.1	6.7	-	118.5	32.8	1.6	1.5	1.4	(4.0)	1.2	3.8	44%	74%	-
Enterprise Products Partners	1.9	51,708	14.7	13.8	12.5	19.8	18.3	16.2	2.3	2.3	2.4	11.9	12.5	14.0	15%	9%	10%
Magellan Midstream Partners	0.7	14,815	16.1	14.7	13.6	18.5	16.7	15.8	7.1	6.9	6.6	37.8	41.1	41.6	8%	9%	8%
Median			15.1	11.5	10.1	20.8	25.3	19.5	1.6	1.4	1.5	7.7	7.9	9.3	11%	<b>9</b> %	-
European gas company																	
Enagas	0.6	6,730	12.9	10.6	10.9	13.6	12.3	13.3	2.3	2.2	2.1	17.0	18.4	15.6	6%	9%	1%
Asian gas companies																	
Hong Kong & China Gas	2.4	26,475	25.3	23.6	22.3	27.2	26.5	25.3	3.6	3.4	3.3	13.3	13.4	13.5	5%	6%	4%
Towngas China	0.2	2,244	13.9	13.0	11.9	13.8	14.6	13.2	1.2	1.2	1.1	8.6	8.5	8.7	11%	8%	2%
China Resources Gas Group	1.6	8,117	10.7	9.6	8.7	17.6	16.3	14.5	3.2	3.1	2.7	18.9	20.0	19.4	15%	11%	10%
China Gas Holdings	1.7	14,920	20.8	15.6	13.3	28.7	19.9	16.7	5.5	4.6	3.9	19.9	24.8	24.7	25%	25%	31%
Beijing Enterprises Holdings	1.5	7,329	17.6	15.8	14.7	9.3	8.7	8.0	0.9	0.9	0.8	10.2	10.7	10.6	0%	9%	8%
Korea Gas	167.0	3,785	11.2	10.6	10.0	54.2	-	9.7	0.4	0.5	0.5	0.6	(6.0)	4.7	5%	6%	136 %
Petronas Gas	0.2	8,143	11.2	10.9	10.1	19.5	19.2	18.0	2.9	2.7	2.6	14.9	14.4	14.7	5%	5%	4%
Median			13.9	13.0	11.9	19.5	17.7	14.5	2.9	2.7	2.6	13.3	13.4	13.5	5%	8%	8%



## Key risk and catalysts

## **Catalysts**

### **Commissioning of Kochi-Mangalore pipeline**

After several years of delay, the construction work of the Kochi-Mangalore pipeline has begun. The pipeline is expected to get commissioned by December 2018. Kochi terminal would be able to operate at 60% capacity utilization post commissioning of this leg of the pipeline. Improved visibility in commissioning of this pipeline will act as a key catalyst for the stock. Some positive movement on the second leg of the pipeline (Kochi-Bengaluru) could be another catalyst, though we haven't built this into our estimates.

#### Consistent market share gain by Dahej terminal

Over 1HFY18, Dahej terminal volume grew 15% vs. overall LNG import growth of 2%. We believe PLNG would continue maintain/improve the market share driven by cheaper regas tariffs as well as back-to-back contracts with key gas marketers in the country. We build in volumes of 16.5MT for Dahej in FY19 and 18MT in FY20.

### **Risks**

### Sharp upmove in LNG prices

Increase in the LNG prices from current levels presents a key risk to our LNG import estimates. Industrial customers are very sensitive to the price of LNG and can easily switch to other forms of fuel like fuel oil and pet coke. Whatever little power is generated by gas-based power plants can also be replaced by coal-based plants.

### **Capital allocation**

In light of limited investments opportunities the Indian re-gas terminal space, clarity on cash utilisation will be a key trigger for the stock price. PLNG is evaluating multiple options for future capital allocation. Apart from Bangladesh, it is also evaluating investing in Sri Lanka and Qatar. Till date there has been no instance of government or parent company recommended capital allocation decisions forced on the company. However, any lapses on capital allocation can be key risks to our BUY stance on the stock.

Exhibit 37: Explanation for our flags on the cover page

Field	Score	Comments
Accounting score	GREEN	Relative to peers, PLNG scores well on our accounting framework due to its (i) high cash conservation; (ii) low volatility in depreciation rate; (iii) low volatility in auditor's remuneration; (iv) low miscellaneous expenses as a percentage of revenue; and (v) low volatility in non-operating income.
Predictability	GREEN	India's LNG imports are published on a monthly basis from where PLNG's volumes can be ascertained to a fair extent. The transmission charges of PLNG are also very stable.
Earnings momentum	GREEN	In the last three months, consensus has increased its earnings estimates for FY18/FY19 led by pick-up in LNG imports.

Source: Company, Ambit Capital research

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Exhibit 38: PLNG has consistently scored well on our forensic framework...

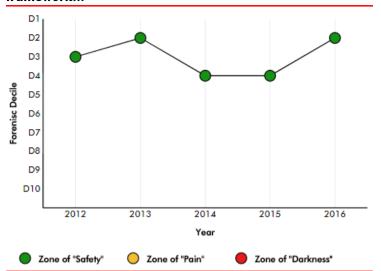
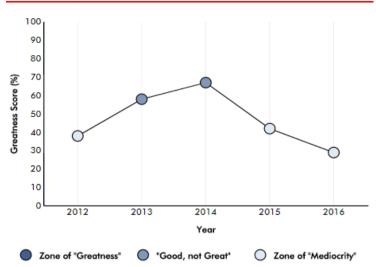


Exhibit 39: ...however its greatness quality (as per our framework) has deteriorated





## **Financials**

## **Balance sheet (Standalone)**

₹mn	FY16	FY17	FY18E	FY19E	FY20
Net Revenue	272,230	246,160	293,473	333,504	368,557
Operating expenses	255,774	220,238	262,097	296,170	320,619
EBIDTA	16,455	25,923	31,377	37,334	47,938
Depreciation	3,393	3,691	4,128	4,251	4,583
EBIT	13,063	22,232	27,249	33,083	43,355
Interest	2,552	2,097	1,172	1,934	1,551
Other income	1,726	3,466	3,418	3,123	4,376
PBT	12,237	23,602	29,495	34,272	46,181
Tax	2,951	6,545	9,143	10,624	14,316
Consolidated PAT	9,285	17,057	20,351	23,647	31,865
EPS (₹/share)	6.2	11.4	13.6	15.8	21.2

Source: Company, Ambit Capital research

## **Income statement (Standalone)**

₹mn	FY16	FY17	FY18E	FY19E	FY20
Shareholders' fund	64,244	79,035	94,680	112,924	118,993
Total Debt	22,113	27,672	30,439	24,351	19,481
Deferred tax Liability	8,939	8,939	8,939	8,939	8,939
Capital employed	95,296	115,646	134,058	146,214	147,413
Gross Assets	93,028	111,946	117,946	121,446	130,946
Less: Acc.Depreciation	22,291	25,982	30,110	34,361	38,944
Net Assets	70,737	85,964	87,836	87,085	92,002
Capital WIP	15,946	12,046	15,407	15,407	15,407
Investments	45	45	45	45	45
Current Assets	18,703	17,449	19,788	21,814	23,389
Less: Current liabilities	31,742	19,727	23,477	26,529	28,719
Cash	21,843	20,105	34,695	48,628	45,525
Capital deployed	95,532	115,881	134,294	146,450	147,649



## **Cash flow statement (Standalone)**

₹mn	FY16	FY17	FY18E	FY19E	FY20
PBT	9,285	17,057	20,351	23,647	31,865
+ Depreciation	3,393	3,691	4,128	4,251	4,583
Cash profit	12,678	20,747	24,480	27,898	36,448
- Incr/(Decr) in WC	(19,074)	10,760	(1,410)	(1,026)	(616)
Other Adjustments	1,873	1,575	1,138	1,015	683
CFO	33,626	11,563	27,027	29,940	37,747
- Income tax paid	2,203	2,203	2,629	3,054	4,116
Operating cash flow	31,752	9,987	25,889	28,924	37,064
- Capex	13,636	15,018	9,361	3,500	9,500
Free cash flow	18,116	(5,031)	16,528	25,424	27,564
- Dividend	4,358	2,266	4,706	5,403	25,796
+ Debt raised	(4,193)	5,559	2,767	(6,088)	(4,870)
Net cash flow	9,565	(1,738)	14,589	13,933	(3,103)
+ Opening cash	23,839	23,839	22,101	36,691	50,624
Closing cash	33,405	22,101	36,691	50,624	47,521

Source: Company, Ambit Capital research

Ratio analysis and valuations (Standalone)

Particulars	FY16	FY17	FY18E	FY19E	FY20
EBITDA margin (%)	6.3	11.1	11.2	11.7	13.7
EBIT margin (%)	4.8	9.0	9.3	9.9	11.8
Net profit margin (%)	3.4	6.9	6.9	7.1	8.6
Dividend payout (%)	40.4	11.4	19.9	19.7	69.7
Net Debt/Equity (%)	0.8	9.9	(4.2)	(21.3)	(21.7)
Interest cover (x)	5.1	10.6	23.3	17.1	28.0
Net debt/ EBITDA (x)	0.0	0.3	(0.1)	(0.6)	(0.5)
Gross block turnover (x)	3.1	3.1	2.9	2.9	2.9
RoCE post tax (%)	11.7	16.6	16.2	17.4	21.7
RoE (%)	15.3	23.8	23.4	22.8	27.5
BV (₹)	42.8	52.7	63.1	75.3	79.3
P/E	41.2	22.4	18.8	16.2	12.0
EV/EBITDA	23.3	15.1	12.1	9.6	7.4
DPS (₹/ share)	2.5	1.3	2.7	3.1	14.8
Dividend yield (%)	1.0	0.5	1.1	1.2	5.8

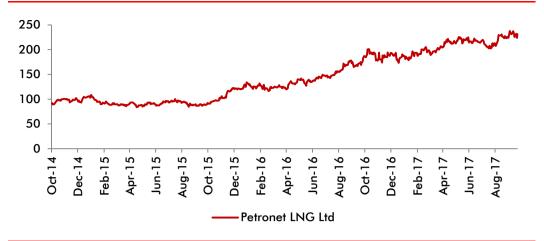


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## Petronet LNG Ltd (PLNG IN, BUY)



Source: Bloomberg, Ambit Capital research



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Investment Rating Expected re		
BUY	>10%	
SELL	<u>≤</u> 10%	
NO STANCE	We have forward looking estimates for the stock but we refrain from assigning valuation and recommendation	
UNDER REVIEW	We will revisit our recommendation, valuation and estimates on the stock following recent events	
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