



## PETRONET LNG LIMITED

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### Rating

ICRA has assigned an issuer rating of IrAA (pronounced as Ir double A) to Petronet LNG Limited (PLL). The rated entity carries low credit risk. The rating is only an opinion on the general creditworthiness of the rated entity and not specific to any particular debt instrument

### Rating History

	Amount Outstanding	Maturity Date	Rating Outstanding	Previous Ratings
			August 2006	-
Issuer Rating	-	-	IrAA	-

### Key Financial Indicators

	30/06/06	31/03/06	31/03/05
Net Sales	10190.8	38371.7	19452.6
Operating Income	10190.8	38371.7	19452.6
Operating Profit before Depreciation, Interest and Tax	1308.7	4902.9	1526.0
Profit after Tax	561.0	1949.3	-284.5
Equity Capital	7500.0	7500.0	7500.0
Net Worth	-	10719.5	8630.2
Profit after Tax/Operating Income (%)	5.50%	5.08	-1.46
Profit before Interest and Tax/(Total Debt + Net Worth)	-	17.99	3.28
Operating Profit before Depreciation, Interest and Tax/(Interest and Finance Charges) (Times)	4.92	4.31	1.40
Net Cash Accruals/Total Debt (%)	-	29	6
Total Debt/Net Worth (Times)	-	1.18	1.46
Total Debt/(Net Worth + Deferred Tax Liability) (Times)	-	1.11	1.46
Current Ratio (Times)	-	2.38	1.60

Amount in Rs. Million

### Website:

[www.icraratings.com](http://www.icraratings.com)  
[www.icra.in](http://www.icra.in)

## Credit Strengths

- Strong and financially sound project participants, including sponsors.
- Robust contractual structure, which effectively addresses most of the risks in the project
- PLL's demonstrated ability to run regassification operations profitably (the track record is however brief)
- Large latent demand for gas in the country
- Favourable financial risk profile, characterised by moderate gearing level and comfortable debt servicing ability

## Credit Concerns

- Project implementation risks inherent in the company's significant capital expenditure programme
- Supply risks emanating from the fact that liquefied natural gas (LNG) is yet to be tied up on a long-term basis for the balance requirement of the Dahej (Gujarat) expansion project
- Exposure of the project to market risks, given the gradual alignment of LNG prices to the recent Japanese Customs Cleared crude oil (JCC) prices from 2009 onwards, and likely competition from alternative fuels

## Rating Rationale

PLL has completed two years of operations since April 2004. While in the first year, the company incurred a loss because of low throughput (2.50 MMTPA), in the second year, i.e. 2005-06, it made a sizeable net profit of Rs. 1.97 billion on the strength of both higher throughput and certain reductions in maritime charges. ICRA draws comfort from the fact that the regassification charges—currently Rs. 26/MMBTU and to be revised upwards 5% every year—ensure at least 16% post-tax equity Internal Rate of Return (IRR) for PLL, net of all expenses. Moreover, PLL's offtakers have been able to sell their contracted quantity to various end-users. According to ICRA's analysis, the fertilizers (46.5%) and steel (10.4%) sectors accounted for a significant share of the offtake, with the other major end-users being power, chemicals, refineries, glass, ceramics and textiles.

PLL's projects have been structured with the objective of allocating most critical risks to external parties, which has led to it carrying relatively low levels of business and financial risk. Technically, Gas Supply Purchase

Agreement (GSPA) leads to absorption of market risks by the off-takers, including risks associated with inflation and exchange rate movements. This would however depend quite significantly on the "economics" of using regassified LNG (R-LNG) as fuel/feedstock, which should be competitive till December 2008, although the potential for

volatility in prices beyond 2009 remains an area of concern. As an illustration, the delivered cost of R-LNG is likely to escalate to around US\$12/MMBTU by January 2014 from the current level of US\$5/MMBTU because of full indexation with JCC prices, assuming the previous 60-month average and 12-month JCC average to be US\$70/bbl each. Although the prices of alternative hydrocarbons would be much higher than that of R-LNG in the scenario discussed, the ability of price sensitive consumers in the power and fertilizers sectors to absorb higher prices of R-LNG remains to be seen. Also, in the intervening period until R-LNG gets repriced in line with the latest oil prices, the delivered cost of R-LNG to consumers could be higher than the prices of alternative hydrocarbons such as naphtha and furnace oil, if the prevailing crude oil prices are significantly lower than the past 60-month average and 12-month average JCC prices. This could impact offtake, especially if the customers have dual feed facility and if competition emerges from lower cost domestic gas or imported pipeline gas/LNG. In such a scenario, it may be required to renegotiate the price of LNG with supplier RasGas, which is provided in the Supply Purchase Agreement (SPA), if the country is able to secure cheaper gas from the other sources.

ICRA, acknowledges the fact that the domestic gas market is increasingly getting influenced by global forces as evident from the sale of gas at market prices by the joint venture/private producers and public sector companies [to non-Administrative Pricing Mechanism (APM) customers] and the purchase of spot LNG by power and fertilizer companies at high prices. Further, the domestic natural gas market is expected to be in short supply over the medium term, with demand far outstripping supplies. However, new sources of supply such as those from Reliance Industries Limited (RIL), Gujarat State Petroleum Corporation Limited (GSPC), the Panna-Mukta-Tapti (PMT) consortium, and possible imports from Myanmar, Iran and Turkmenistan would hit the market over the long term. In such a scenario, access to cost competitive gas would assume added importance.

PLL has conceived of two new projects, viz. expansion of the Dahej plant to 10 MMTPA and setting up of a new regassification plant at Kochi (Kerala), at project costs of around Rs. 16 billion and Rs. 22 billion, respectively. These projects are to be funded at debt:equity ratios of 3.36: 1 and 2.33: 1, respectively. Although the debt:equity ratio of the individual projects is high, overall, the net gearing of PLL is expected to be at moderate levels over the long term, given its currently robust net worth and surplus liquid investments. As for the additional LNG that would be required at Dahej post expansion would be sourced partly from RasGas (2.50 MMTPA) and the rest from other suppliers. PLL has already awarded an Engineering Procurement and Construction (EPC)

contract and signed a Time Charter Agreement (TCA) for the Dahej expansion. Further, financial closure for the Dahej expansion has been completed. The project is slated to achieve commercial production by April 2009. However, LNG could be available from RasGas' train 7 only from October 2009. As a result, PLL will have to run the plant on either spot LNG or keep it idle for six months. GSPA has been signed with the existing offtakers for the incremental quantity of 2.50 MMTPA.

However, an area of concern is that LNG is yet to be tied up for the balance requirement of Dahej and the Kochi project. The global LNG market has been witnessing tight-demand supply levels over the past one year following the entry of the US and Europe as buyers and the sharp rise in the prices of alternative hydrocarbons. As a result, new capacities are not available for long-term contracts until 2010, and ICRA's analysis shows that going forward, globally, regassification capacity is likely to continue exceeding liquefaction capacity. PLL is in advanced talks with one of the promoters of Gorgon project in Australia for sourcing LNG on a long-term contract basis. PLL is likely to source 2.50 MMTPA from this project for which it is expected to sign an SPA by December 2006. Pricing of LNG and other commercial details of this contact remain uncertain as of now.

The expansion of the Dahej plant from 5 MMTPA to 10 MMTPA at a low incremental capital cost provides for fairly comfortable debt service coverage indicators and IRR. Given that the LNG procurement charges are a pass-through, the debt service capabilities of the project depend fundamentally on the regassification charge, which apart from debt service would also be used to fund operations and maintenance (O&M) expenses, pay income tax, and provide returns to the equity holders. Contractually, there is a provision for raising the regassification charge by 5% per annum, and in this scenario, the cash flows from the 7.50 MMTPA Dahej plant, which have a high degree of certainty, should be adequate to service the debt of 10 MMTPA Dahej capacity and the Kochi project. The company's debt service indicators also appear comfortable in a stress scenario of lower growth in regassification charges, which is a major positive from the credit perspective. The rating assigned however does not factor in the capital expenditure associated with any acquisitions that PLL may resort to in future. ICRA will evaluate the credit implications of such acquisitions once there is further clarity on the subject.

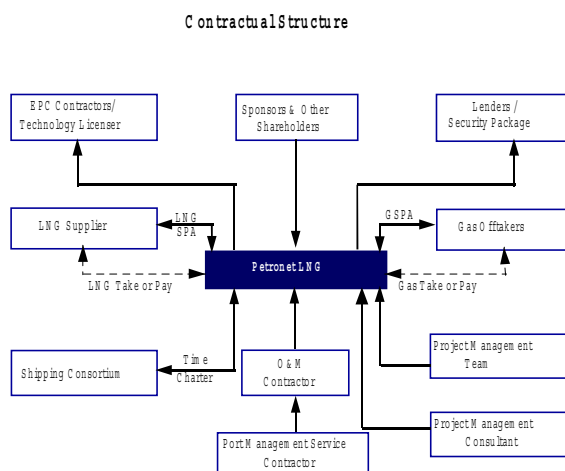
## Company Profile

PLL has been promoted by four public sector oil and gas companies-ONGC, GAIL, IOC and BPCL-each with an equity stake of 12.50%. Gaz De France (GDF) and Asian Development Bank (ADB) have 10% and 5.2% equity stakes respectively, in PLL, while the rest is in the hands of institutional investors and the general public. PLL has a 5 MMTPA LNG regassification plant at Dahej, where in commenced commercial production from April 2004. The operations of the company are governed by the provisions of a series of agreements such as an SPA with RasGas, Qatar; a TCA with the Mitsui OSK consortium; a Port Operations Service Agreement (POSA) with a Singapore consortium; GSPAs with the offtakers; and Payment Security Mechanism (PSM) with Rasgas & lenders. PLL is currently in the midst of expanding the capacity of its Dahej plant from 5 to 10 MMTPA and setting up a 2.50 MMTPA new regassification terminal at Kochi. These two projects are expected to get commissioned by March 2009 and April 2010, respectively. While financial closure for the Dahej project has been completed, that for the Kochi project will be done once a long-term contract for LNG is tied up for it.

## Business and Competitive Position

### Contractual structure for existing operations

PLL's regassification operation is governed by a series of contracts entered into between the company and various counterparties, including EPC and O&M contractors, LNG suppliers, offtakers and lenders. The contractual structure is presented below:



The contractual structure principally revolves around the take-or-pay provision in the SPA between PLL and RasGas for the purchase of LNG, and a back-to-back take-or-pay provision in the GSPA between PLL and the principal offtakers<sup>1</sup>. Apart from these two agreements, the contractual structure involves a time charter agreement with a shipping consortium headed by Mitsui OSK Lines and an EPC contract with a consortium headed by Ishikawajima-Harima Heavy Industries Company Limited (IHI), Japan. The latter however has come to an end with the successful completion of the first phase of the Dahej project. Other key contracts are discussed in the following sections.

### Supply-Purchase Agreement

PLL has signed an SPA for LNG with RasGas (Rated 'A1' by Moody's Investors Service), which is a joint venture between Qatar Petroleum (QP) and Exxon Mobil (EM). The SPA envisages the purchase of 5 MMTPA of LNG on free on board (f.o.b) basis for 25 years on a take-or-pay basis. PLL also has an additional allocation for 2.5 MMTPA from RasGas for its Kochi terminal, which it intends to divert to Dahej, post-expansion.

At present, RasGas operates five liquefaction trains at Qatar with total capacity of 23.5 MMTPA, which supply LNG to KoGas of Korea, PLL (from train 3), Endesa of Spain, Edison of Italy, and Distrigas and Fluxys of Belgium. RasGas would have a total of seven trains with a cumulative capacity of 36.6 MMTPA by 2009; of these, five trains are complete as of now. The project has

<sup>1</sup> GAIL (60%), IOC (30%) and BPCL (10%)

been taken up by three separate SPVs, viz., RasGas I, II and III. PLL had originally entered into an SPA with RasGas, the parent company, which was subsequently assigned in favour of RasGas II to protect the interest of the lenders. RasGas has access to the world's largest non-associated gas field, the North Field, Qatar, which has proven reserves of 900 trillion cubic feet (TCF).

In accordance with the SPA, supply of LNG to PLL commenced in December 2003; actual supply was around 2.50 MMTPA in 2004-05 and 5 MMTPA in 2005-06. Supply would be maintained at 5 MMTPA until October 2009, when the volume will go up by 2.50 MMTPA. Thereafter, supply will be maintained at 7.50 MMTPA till the contract completion period, subject to certain adjustments of annual quantities. The pricing of LNG is a crucial component of the SPA, given that the demand for natural gas in India, which primarily emanates from the power and fertilizer sectors (70%), is price sensitive. The pricing formula proposes a fixed price indexed to a JCC price of US\$20/bbl for the first five years (till December 2008). Subsequently, the price would be linked to the previous 12-month JCC prices, subject to a floating floor and a cap, with the cap and floor calculated using the average JCC prices during the previous 60 months. This formula would expose LNG prices to some variability beyond 2009, although the project has been provided a five-year (2004-2008) "moratorium" for developing the gas market, which is currently evolving.

### LNG Time Charter Agreement

PLL has signed two TCAs for hiring two LNG Tankers with a consortium headed by Mitsui OSK Lines Limited. The TCAs are valid till April 2028 and extendable by another two years. The consortium has made available two LNG Tankers of capacity 138,000 m<sup>3</sup> each for transporting LNG from RasGas, Qatar, to PLL's LNG facilities at Dahej. The Hire Rate per ship consists of a non-escalating element of US\$ 57,900 per day and an escalating amount of US\$11,000 per day to be escalated at a maximum rate of 3% per annum. The charter rates are quite competitive and compare favourably with the long-term charter rates signed by similar projects; as for the prevailing spot rates, they are considerably higher.

### Gas Sales Purchase Agreement

PLL has signed GSPAs with its offtakers, which would ensure offtake of the regassified LNG on a take-or-pay basis, on a back-to-back basis and co-terminus with the take-or-pay provision in the SPA. The sale price of the regassified LNG would consist of the following components:

- ◆ The LNG price consisting of the actual cost of procuring LNG under the LNG SPA (around US\$2.53/MMBTU at the JCC price of US\$20/bbl), plus shipping charges

(US\$0.22/MMBTU) and load port charges (around US\$0.04/MMBTU)

- ◆ The regassification charge, which would include O&M charges payable by PLL to the O&M contractor, port charges, debt servicing and financing costs, administrative overheads, insurance costs, taxes and 16% post-tax return on equity (around Rs. 23.7/MMBTU in 2004, which would increase by 5% per annum).
- ◆ Taxes and Duties Rate, which will equal the taxes and duties payable by PLL for importing, shipping, regassifying LNG and selling gas in India. The import duty rate at present is 5.1%, which would translate into a cost of US\$0.14/MMBTU, while Value Added Tax (VAT) at the rate of 12.5% would amount to around US\$0.44/MMBTU.

The GSPA assumes considerable importance from the point of view of risk mitigation, as it contractually transfers most risks to financially strong entities<sup>2</sup>, while at the same time supporting PLL's debt servicing commitments through the regassification charge.

PLL's offtakers have been able to fully tie up customers for selling R-LNG. Using the publicly available information on GAIL and IOC's customers, who account for 90% of PLL's offtake, *Table 1* brings out the industry-wise consumption pattern for R-LNG.

**Table 1: Industry-wise offtake of R-LNG**

Industry	Share
Fertilizers	46.5%
Steel	10.4%
Power	8.6%
Glass	5.5%
Refineries	3.7%
Others	6.0%
Intermediate offtakers*	17.0%
Total	100.0%

\*GSPC

GAIL has a diversified customer base with a large number of consumers spread across the glass, ceramics, chemicals, automotives, textiles, and steel industries, besides the power and fertilizer sectors—traditionally the largest consumers of natural gas in India. IOC has limited but high volume customers, with the company also consuming around 11% of its commitment under GSPC at its Koyali and Mathura refineries.

While the offtakers have been able to pass on all the cost elements of R-LNG to their customers, they have been able to conclude the gas sales agreement (GSA) with their customers only for tenures of five to 10 years, as opposed to their take-or-pay obligation for 25 years under GSPA. This has been because of the reluctance of the end-consumers to commit themselves for a fairly

long period of 25 years. Thus, the offtakers face the risk of non-renewal of GSA beyond the contract period.

#### Joint Payment Security Mechanism

PLL and RasGas have agreed upon a PSM, which envisages that the payments from the offtakers would be split into two streams, one covering LNG charges and charter hire payments, and the other covering regassification charges. These would be deposited into a Fuel Payment Trust and Retention Account (FPTRA) and a PLL Onshore Trust and Retention Account (POTRA), respectively. FPTRA has two sub-accounts, the LNG Charge Account, and the Charter Hire Charge Account, into which the fuel payment and the charter hire charges would be deposited. The amounts due to RasGas and the LNG Shipper would be transferred to their respective Offshore Trust Accounts on the due dates. PLL also provides for a US Dollar denominated standby letter of credit for covering two months of payment to the LNG supplier and four months of charter payments to the shipping consortium. The inflows into the PLL Onshore Accounts, which are the regassification charges, would first be used to make statutory payments and meet operating expenses, following which the residual amount would be transferred into a debt service account, from which the payouts would be made to the lenders. In addition, PLL has offered letters of credit (LCs) to the lenders, covering two quarterly debt servicing commitments. The residual cash flows would be available for appropriation.

#### Financing Structure

The LNG regassification plant with associated import terminal was completed in March 2004 at a total project cost of around Rs. 20.13 billion, which is significantly lower than the initial estimate of Rs. 25.76 billion. The savings in project cost were brought about by the decision not to construct a breakwater facility, by the savings made in LC charges and interest costs, and by the absence of any requirement to fund the cash losses that had been projected initially. In fact, instead of cash losses, the company actually made cash profit in the first year. The PLL project was funded at a debt: equity ratio of 1.68:1. As on March 31, 2006, PLL had equity (including share premium) of around Rs. 9.05 billion, of which Rs. 3.91 billion was raised during the public issue in March 2004 from the market as well as the promoters. After allocating Rs. 7.50 billion towards the first phase of the project, the company intends to use the balance equity of Rs. 1.56 billion for the expansion projects. For the first phase, the debt component of Rs. 12.60 billion, with a tenure of 11.25 years from the commercial operations date (COD), was sourced from a consortium of 13 banks. These loans are to be repaid in 36 quarterly instalments, with the first instalment falling due in September 2006, after a moratorium of 2.50 years from the COD

<sup>2</sup> GAIL and IOC rated LAAA by ICRA

## Management Evaluation

PLL's Board comprises 15 members with three functional directors, one nominee each from the promoters ONGC, GAIL, IOC, BPCL and GDF, six independent directors and one chairman who is the Secretary, MoPNG, GoI. Day to day operations are overseen by Mr. P. Dasgupta, Managing Director of PLL. Most of the middle level personnel have had prior work experience in the domestic oil & gas industry.

PLL had received significant financial support from the sponsor companies during the initial phase of the project by way of short term loans, financial guarantees and commitment for meeting cost over-run in the project. While these loans and guarantees no longer exist with the company having tied-up funding on a standalone basis, its strong parentage is a credit positive especially in view of capital intensive projects lined up.

## Financial Position

### Profitability improves following volume growth and decline in expenses

PLL has completed slightly over two years of operations. Its key operational and financial indicators are presented at *Table 2*.

**Table 2: Contribution for PLL from sale of R-LNG**

	Unit	Q1 2006-07	2005-06	2004-05
Sale of R-LNG	TBTU	63.15	246.81	125.03
Regassified LNG	TBTU	3.2	0	0
Total	TBTU	66.35	246.81	125.03
Sales	Rs. Million	10191	38372	19453
RM Cost	Rs. Million	8539	32535	16961
Contribution	Rs. Million	1652	5837	2492
Contribution		16.2%	15.2%	12.8%
Contribution	\$/MMBTU	0.54	0.52	0.46

Source: PLL and ICRA estimates  
TBTU: Trillion British Thermal Unit

With capacity utilisation of PLL's plant being low in 2004-05, it could not absorb the high fixed costs of interest, depreciation and O&M, and posted a book loss. In 2005-06 however, as capacity utilisation improved, the company's contribution, operating profit and net profit showed a significant improvement; this continues in the current fiscal. At its existing plant, PLL has a cushion to go up to an output of 6.3 MMTPA, considering its available regassification capacity (22.5 MMSCMD). To utilise its spare capacity, PLL has made its plant available on a tolling basis to offtakers for regassifying the LNG bought on the spot market. During the first quarter of 2006-07, PLL handled one shipload of spot LNG, and subsequently, it has handled two more shiploads. The company earns regassification revenues of around Rs. 83.5 million for every shipload of spot LNG of volume 1,35,000 m<sup>3</sup>, which directly adds to its bottomline as the variable costs for tolling are negligible and the fixed costs are recovered through the existing regassification charges for 5

MMTPA. Going forward, PLL plans to toll at least one shipload of spot LNG every month if there is adequate demand for spot LNG and the offtakers are able to find consumers.

PLL's profitability growth in 2005-06 was also aided by the reduction in port charges and in the waterfront royalty payable to the Gujarat Maritime Board. In the current fiscal, PLL's interest costs have declined on account of a reduction in the interest rate on its term loans from 9% to 8%. The improvement in profitability has also enabled PLL to lower its gearing and maintain its debt protection metrics at comfortable levels. Its liquidity has also remained comfortable with the working capital cycle being short and cash generation from operations robust. As on March 31, 2006, PLL had surplus investments of Rs. 4.08 billion; because of this its utilisation of fund based working capital limits remains low.

## New Projects

### Significant outlay on Dahej expansion and Kochi project

**Dahej expansion:** PLL has decided to expand its regassification capacity at Dahej from 5 to 10 MMTPA, with a cushion to go up to 12.5 MMTPA. The cost of this expansion project is estimated at Rs. 15.91 billion, to be funded at a debt:equity ratio of 3.44: 1. Construction for the project has already begun with the zero date set at February 1, 2006. The project is set to attain mechanical completion by December 31, 2008 and begin commercial production by April 1, 2009. Financial closure of the project has been completed with term loans of Rs. 12.33 billion being tied up with a consortium of 11 banks. The loans have a tenure of nine years post-COD, which includes a one-year moratorium for principal repayment. Repayment of the loan is to start from March 31, 2010 in 32 quarterly instalments. The interest rate for the loans is 8%, to be reset every three years and linked to the prime lending rate (PLR) of State Bank of India (SBI). As for equity, it will be met entirely from internal accruals and unused proceeds from the public issue made earlier.

PLL will be sourcing 2.50 MMTPA of LNG from RasGas, with whom it has already signed an SPA. The incremental quantity will be available from "train 7" of RasGas III SPV, expectedly from October 1, 2009 until the SPA's expiry in April 2028. Because of anticipated early completion of the regassification expansion, PLL will have to run the incremental capacity on either spot LNG or keep the plant idle for six months until LNG is available from RasGas.

PLL would require two ships for ferrying 5 MMTPA LNG to meet its incremental regassification capacity. After competitive bidding, PLL has selected the existing Mitsui OSK consortium for the ship with a capacity of 1,55,000

m<sup>3</sup>; this ship is expected to be made available in September 2009. The total time charter rates committed for the third ship are US\$72,880/day vis-à-vis US\$70,652<sup>3</sup>/day for the existing two ships each made available by the same consortium. The higher rates have to be seen in the light of the higher capacity of the new ships and the currently firm trends in spot charter rates.

As for offtake, the existing GSPA has been amended to include the incremental quantity of 2.50 MMTPA; but for this, the other terms and conditions and regassification charges are similar as in the original GSPA. Evacuation of the gas will be done through the existing Dahej-Vijaipur Pipeline (DVPL), which has some spare capacity, besides the Dahej-Hazira-Uran pipeline (DUPL), which is likely to be commissioned in Q4, 2006-07. In addition, the gas evacuation networks of Gujarat State Petronet Limited (GSPL) and GAIL can be used by the offtakers for serving the Gujarat market.

PLL requires two LNG storage tanks for the expansion project. The company may invest in an additional tank to manage operations smoothly during monsoons and to have flexibility for storing spot cargos. Capex for this tank is estimated at around Rs. 2.50 billion.

**Kochi project:** The cost of this project, envisaging establishment of a 2.50 MMTPA R-LNG terminal, is estimated at Rs. 22.19 billion. The project is to be funded at a debt:equity ratio of 2.33: 1, assuming Rs. 4.50 billion equivalent foreign currency convertible bonds (FCCBs) as equity on full conversion. The construction period, including commissioning, is expected to be 43 months. However, zero date for the project is yet to be set as LNG supplies are still to be tied up via a long-term contract and financial closure yet to be completed.

The regassification terminal at Kochi will have the infrastructure to expand its capacity to 5 MMTPA later at modest investments. The capital costs of the Kochi project are however higher by around 120%, despite its having a shorter jetty as compared with the first phase of the Dahej project (refer Table 3).

**Table 3: Comparison of Capital Costs of PLL's Projects**

	Dahej	Dahej expansion	Dahej combined	Kochi	Overall PLL
Capex in Rs. Billion	20.13	15.91	36.04	22.19	58.23
Capacity in MMTPA	5	5	10	2.5	12.5
Capex in Rs/MT	4026	3182	3604	8876	4658

While the need for a breakwater facility at Kochi vis-à-vis none at Dahej would explain the cost differential, a major reason for the cost escalation at Kochi is the rise in steel prices and hence EPC costs. The latter also explains only a 21%

reduction in capital costs for Dahej expansion vis-à-vis initial Dahej project cost. But for the rise in steel prices, the capital costs for Dahej expansion would have been much lower because of the sharing of infrastructure such as import jetty, land, administration, and office space. Notwithstanding the high capital costs for the new projects, PLL's overall capital costs still compare favourably against that of the new projects viz Kochi and Dahej expansion. PLL is also trying to set up the Kochi project in a special economic zone (SEZ), which if approved should result in a marginal decline in capital costs due to the fiscal incentives.

In addition to the above projects, PLL is planning to invest Rs. 750 million in developing a sold cargo port in a joint venture with Adani Exports Ltd (AEL). The company has to undertake this project as part of its agreement with Gujarat Maritime Board. Project cost for the first phase is estimated at Rs. 5 billion, which will be funded with a 70:30 debt : equity ratio. PLL and AEL will have 50% equity stake in the project. Due to the infrastructure nature of the project, returns from the investments are unlikely over the next 4-5 years.

### Risk Analysis for Existing Operations and New Projects

#### Completion Risks

As for PLL's existing operations, completion risk is nil as all the links in the LNG value chain—viz., offshore field development, liquefaction plant, port loading facilities, ships, regassification plant, and gas evacuation pipelines—are in place and have been running successfully for well over two years now. However, completion risks would remain for the Dahej expansion and Kochi projects. With regard to Dahej expansion, PLL has already awarded the EPC contract to IHI, Japan; the contract is a fixed-price fixed-date contract. Completion risk in this case is mitigated by the fact that IHI has rich experience in executing regassification terminals and was also the contractor for phase I of the Dahej project. The new EPC contract provides for liquidated damages (LD) of up to 15% of the contract value of Rs. 11.81 billion, which in case of inordinate delays in project completion would cover up to 21 months' interest payments. As for shipping arrangements for the Dahej expansion, PLL has awarded the contract to the Mitsui OSK consortium, which is committed to make available the ship by September 2009. The cost of the ship is estimated at US\$250 million, for the funding of which the consortium has attained financial closure. The risk of delays in ship availability is partly mitigated by the compensation of US\$1,50,000/day that the ship owners have committed to pay for a maximum of 180 days. The gas evacuation pipeline network is not expected to be a constraint as both GAIL and GSPL are either expanding capacities or laying new

<sup>3</sup> Escalated time charter rate for 2009

pipelines, which should be in place well before the target completion date for the Dahej expansion project.

With regard to the Kochi project, PLL is yet to award contracts, pending finalisation of LNG sourcing. Since PLL has considerable experience in setting up a greenfield terminal, it is expected that the company will put in place significant risk mitigants in its contracts so as to have the project completed on time.

### Supply Risks

Supply risks in PLL's business emanate primarily from the adequacy of gas reserves in the exporting country for meeting the long-term requirements of a project and the ability of the exporter (RasGas in this case) to operate the liquefaction facility at the desired efficiency levels. Supply side risks in the PLL's Dahej project upto 7.50 MMTPA of LNG are quite low on account of the following factors:

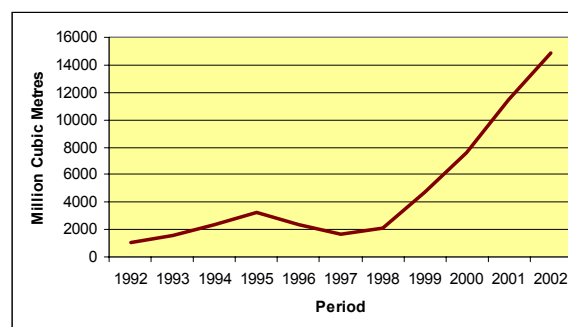
- ◆ Access to the world's largest non-associated gas reserves, the North Field, which is estimated to have reserves of 900 TCF. Within the allotted blocks for RasGas I, II and III, certified recoverable reserves amount to about 3X36 TCF, which can produce 30 MMTPA of LNG for 25 years. Over the contract life, RasGas I, II and III, would utilise an estimated 4% of the proven reserves. Further, the Qatar Government, which owns QP, has also given a firm commitment to RasGas for allocating further acreage, apart from the 144 sq. km. already allocated to RasGas II, in case the existing reserves are insufficient to meet the requirements of the liquefaction project.
- ◆ ExxonMobil, an entity rated Aaa by Moody's Investors Service, is firmly committed to RasGas, and has already demonstrated its capabilities of setting up and operating the first five trains, which are supplying LNG to Korea, Europe and India under long-term 25 year contracts. Further, ICRA draws additional comfort from the strategic importance of the RasGas project to both its sponsors and the fact that RasGas is investing a substantial amount of capital (US\$2.8 billion) for meeting its supply commitments to the PLL project.
- ◆ While there is no explicit supply or pay liability on RasGas in the SPA, the risk arising from this is mitigated by a clause in the SPA, according to which all foreseeable losses and damages from breach of the agreement, are to be compensated by either party. This should take care of PLL's liabilities to the off-takers under GSPA and its debt service commitments, but perhaps not loss of profit. ICRA however believes that in the event of a

dispute, actual compensation could be subject to judicial interpretation.

For the Dahej expansion (for quantities beyond 7.50 MMTPA) and Kochi projects of PLL, supply risks would however be significant. Demand-supply levels in the global LNG market have been tight over the past one year and are likely to remain so over the medium term. Although significant new capacity additions have been announced, most of the firm capacities have been tied up through long-term contracts until 2010. Most of these projects are also understood to be facing time and cost overruns. Besides, because of the increased mobility of gas and the rise in crude oil prices, long-term f.o.b. contracts are now being signed at US\$4-6/MMBTU as against US\$2-3/MMBTU until a few years ago. Consequently, there has been considerable delay in tying up LNG on a long-term contract basis by Indian players, including PLL. The latter however is in advanced stages of negotiation with one of the promoters of the Gorgon project in North-West Australia, for sourcing 2.50 MMTPA of LNG on a long-term contract basis. PLL intends to utilise this LNG for its Kochi project. The Gorgon project however suffered a setback recently with environmental objections being raised; but such objections are being contested by the project owners, including Chevron (50%), ExxonMobil (25%), and Shell (25%). If the project is cleared, PLL hopes to sign the SPA with the promoter by December 2006, with the LNG being made available to PLL by late 2010.

Until recently, long-term commitments for supply had been a feature of the global LNG business. However over the past few years, there has been considerable growth in the global spot business, driven both by the availability of ships and surplus liquefaction capacity. The growth of this market has also been aided considerably by buyer demands for more flexible and shorter-term SPAs; The development of the LNG spot market over the past decade is bought out in *Chart 1*.

**Chart 1: Spot transactions in LNG**



As *Chart 1* shows, growth in the spot market has far outstripped growth in the global LNG business over the past decade or so, resulting in the share of the spot business rising from about 1% in 1992 to almost 10% now. The availability of a fairly

large and vibrant spot market considerably reduces the risks associated with the failure of RasGas to supply in accordance with the contractual terms. Purchases from the spot market would however expose PLL and its offtakers to the risks associated with volatility in LNG prices.

### Market Risks

The domestic demand-supply position for gas is quite favourable, with supplies estimated at 96 million metric standard cubic metres per day (MMSCMD) in 2006-07 falling well short of the estimated demand of 166 MMSCMD. The demand for natural gas although substantial is highly price sensitive, given that the power and the fertilizer sectors, the largest consumers of gas, remain subsidised and operate within regulatory controls. However, over the past two years, there have been significant developments in the domestic market towards gradual deregulation of the gas sector. These include modest increase in landfall prices for core sector consumers, linking of landfall gas prices for other consumers with market rates, and gradual rise in gas prices for bulk supplies to Compressed Natural Gas (CNG) companies. On the supply front, sources have diversified with R-LNG being marketed from PLL and Shell Hazira India. Going forward, supplies are expected to further diversify with RIL and GSPC expected to begin supplies from their new finds and with gas being sourced from Myanmar and possibly from Iran and Turkmenistan through transnational pipelines. According to ICRA's estimates, in an optimistic scenario, gas supplies would more than double by 2010-11 over the current levels. While demand could still be higher, ICRA believes gas-to-gas competition could emerge in certain regions, which would place marketers with access to cost competitive gas at a competitive advantage over others. ICRA expects the fertilizer sector to be the main driver of incremental gas demand over the medium term in view of the conversion of plants using naphtha, furnace oil (FO), and low sulphur heavy stock (LSHS) to gas as the feedstock/fuel. As for the power sector, demand from it could be limited, with natural gas being used possibly to meet only peak demand, given the price competition from coal-based plants. ICRA also expects demand to diversify with the petrochemicals, refineries, industrial, transport and residential sectors consuming more gas because of cost economics, thereby diminishing the current concentration on power and fertilizers.

The landed cost of R-LNG from PLL compares quite favourably against the prices of alternative liquid hydrocarbons such as naphtha, FO, LSHS and light diesel oil (LDO), and gas from some private producers.

**Table 4: Landed Cost of R-LNG to Consumers**

	Unit	Upto Dec 2008	
		Within Gujarat	O/s Gujarat
JCC price	\$/bbl	20	20
FOB price of LNG	\$/MMBTU	2.53	2.53
Shipping charges	\$/MMBTU	0.26	0.26
Transit Insurance	\$/MMBTU	0.00	0.00
CIF	\$/MMBTU	2.79	2.79
Customs duty	\$/MMBTU	0.14	0.14
Regassification charges	\$/MMBTU	0.57	0.57
Ex-Dahej price	\$/MMBTU	3.51	3.51
VAT	\$/MMBTU	0.44	0.44
Marketing Margin	\$/MMBTU	0.05	0.05
VAT Credit	\$/MMBTU	0.00	-0.30
Pipeline tariff	\$/MMBTU	0.53	0.53
Service Tax on pipeline tariff	\$/MMBTU	0.07	0.07
Local sales tax <sup>A</sup>			0.17
Delivered price at GCV	\$/MMBTU	4.59	4.30
Delivered price at NCV	\$/MMBTU	5.05	4.72

<sup>A</sup>Illustrative purpose only as LST could vary from State to State.

Certain sectors are also exempted from LST

Source: ICRA estimates

However, the f.o.b. prices of LNG would undergo a structural change from January 2009, when they would gradually float in line with the previous 12 months' average JCC prices, subject to certain floating cap and floating floor prices. In the event of crude oil prices remaining firm, the landed cost of R-LNG could increase to around US\$12/MMBTU by January 2014, if the previous 12 months' average JCC prices and previous 60 months' average JCC prices were US\$70/bbl each. While alternative liquid hydrocarbons could be more expensive, such high R-LNG prices may not be affordable for some of the price sensitive consumers. PLL's R-LNG prices could be costlier if the current crude oil prices are significantly lower when compared with the previous 60 months' average JCC prices and the previous 12 months' average JCC prices. This is because, while liquid hydrocarbons are priced immediately, with a maximum lag of two to three weeks, PLL's R-LNG will be tied to the previous 60-months average and previous 12-months average JCC prices. Thus, in a scenario of sharply declining crude oil prices, PLL will face a pricing risk in the intervening period until its LNG is priced as per the formula. Overall, while this risk would remain, ICRA believes it would not be material enough to impact the cost economics of using R-LNG. Above all, market risks for PLL are considerably mitigated by the provisions of the GSPA; these provisions enable the transfer of market risks to financially strong counterparties with an established presence in the domestic oil and gas sector.

As for the Kochi project, demand for natural gas in Kerala is estimated at 22 MMSCMD, i.e. both current demand and demand based on future projects. An anchor customer for PLL is likely to be National Thermal Power Corporation (NTPC), which has planned to increase the capacity of its Kayamkulam plant from 350 MW to 2,300 MW,

which will require 2.10 MMTPA of LNG. Currently, this plant runs on naphtha and below the optimum plant load factor (PLF), given that naphtha is a high-cost fuel. The other potential customers for PLL's Kochi project are Kochi Refineries Limited (KRL), and Fertilizers and Chemicals Travancore Limited (FACT), whose requirements are 1 MMTPA of R-LNG each. In addition to these, there are several medium and large companies in the power, chemical, aluminium, ferro-alloys and newsprint sectors, who would require gas. The R-LNG will be marketed by the existing offtakers, although their individual share is yet to be decided.

### Force Majeure Risks

*Force Majeure* assumes considerable significance in a project of the nature of PLL, given that the supply chain can be disrupted by event risks affecting any of the following:

- ◆ The LNG supplier's facilities
- ◆ PLL's facilities
- ◆ GAIL's transmission network
- ◆ The LNG carriers

The risk associated with non-availability of the chartered LNG vessels or disruptions in RasGas' facilities could be countered either by hiring ships or sourcing gas from the spot markets, which have grown quite considerably over the past few years. Such purchases would however be exposed to volatility in prices. The project is however exposed to risks associated with

disruptions in its own facility and/or in the evacuation system, which could affect the operations of the entire chain and impact debt servicing. Such event risks have been addressed through adequate business interruption insurance covers, which take care of fixed charges including debt servicing commitments, shipping charges and profit for 18 months post-disruption. Proceeds from insurance companies, following the incidence of a *force majeure* event, usually come in after a lag, and during this period, the debt holders would have access to DSRA LC, which would provide coverage for six months of debt servicing (principal and interest).

### Funding Risks

Funding risks for the new projects of PLL are not significant, as the debt component for the Dahej expansion project has been tied up fully. PLL is however yet to tie up debt for the Kochi project, including US\$100 million in FCCBs; ICRA however does not consider this to be an issue of concern, given the demonstrated ability of PLL to raise funds at competitive rates.

### Prospects

ICRA expects PLL's debt servicing ability to be comfortable over the long term, given the strong contractual provisions for transferring most critical risks to external parties, the company's significant cash accruals from operations, and the long maturity profile of its debt.

#### Key Conversion Factors

1 MMTPA of LNG	= 50.9852 TBTU
1 MMTPA of LNG	= 3.58 MMSCMD of R-LNG
1 TBTU of LNG	= 42299 m <sup>3</sup> of R-LNG



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