

# Patel Engineering

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## Hydro-powered!

- Patel Engineering's end markets — hydropower, irrigation, urban infrastructure, and transportation— are in a strong growth phase. Its order book at Rs 49bn is 5.1x (Last 4 quarter sales). We expect a FY06-09E revenue CAGR of 33%.
- Margin improvement by 80bps over FY06-08E, as 80% of revenues coming from higher margin business (hydropower and irrigation), increasing proportion of revenues from high-margin standalone Patel Engineering, Equipment constrains of the sector, increasing average project size, and better project selection.
- Foray into realty with a land bank of 500 acres to give a big push to revenues over a period and to valuations in near future. We have valued its realty business at Rs 141/share (+33% CMP). We believe that cash flows from realty will help further strengthen its core business.

### Investment rational

- Strong earnings visibility and revenue growth. Hydropower projects of Rs 900bn (~1,800MW) along with strong investments (Rs 250bn/year each) in irrigation and urban infrastructure segments are expected during the 11th plan. Patel will be one of the key beneficiaries of these investments. Also the micro tunneling market size is expected to be Rs 5 bn/year (Patel's share of 20%).
- Favorable project mix of the hydro projects (50%), irrigation (28%), and micro tunneling transportation and others (22%) will ensure that the margins remain high. *We expect the margins to improve by 80 bps over FY06-08*
- Earnings expected to grow at a healthy CAGR of 42% over FY06-09E.
- The management is actively seeking inorganic expansion to gain qualifications and capabilities in upcoming segments. Michigan Engineering is its recent acquisition (turnover of Rs 250mn) in the urban infrastructure segment.

### Valuation

- We have used sum-of-the-parts methodology to arrive at a fair value of Rs 663. Our DCF based 12-month target for its core business is Rs 522 and for its realty business it is Rs 141.
- CMP valuations: PE of 23x FY07E, 16x FY08E, EV/EBITDA of 14.7x FY07E and 10.6x FY08E
- Target valuations: PE of 14.7x FY09E, EV/EBITDA of 10.3x FY09E

### Valuation summary

Y/E Mar, Rs mn	FY05	FY06	FY07E	FY08E	FY09E
Net Sales	7,779	10,148	13,331	18,438	24,217
Growth, %	2.5%	30.4%	31.4%	38.3%	31.3%
Core EBIDTA	716	1,261	1,736	2,516	3,271
EBIDTA margins, %	9.1%	12.3%	12.9%	13.6%	13.4%
Net profit	421	742	1,121	1,611	2,132
Net profit margin, %	5.2%	7.1%	8.3%	8.7%	8.8%
EPS, Rs	6.9	12.2	18.7	26.9	35.5
EPS Growth, %	49.1	76.4	52.9	43.8	32.3
PER, x	61.5	34.9	22.8	15.9	12.0
EV/EBIDTA, x	31.2	20.6	14.7	10.6	8.6
EV/Net Sales, x	3.4	2.8	2.0	1.5	1.2
Price/Book Value, x	17.0	11.8	3.3	2.8	2.3
ROIC, %	9.0	14.8	15.3	18.1	19.0
ROE, %	27.6	33.7	14.5	17.6	19.4
Dividend Yield, %	0.5	0.3	0.5	0.7	0.9

Source: Company, Man Financial Research Estimates.

**BUY / Rs 426**  
**Target Rs 663 (+56%)**

#### Sector (Relative to market)

OW	N	UW

#### Stock (Relative to market)

B	OP	N	UP	S
> 10%	5% to 10%	5% to -5%	-5% to -10%	< -10%

Bloomberg code: PEC IN  
 Reuter's code: PENG.BO  
 www.pateleng.com

BSE Sensex: 13874  
 NSE Nifty: 4001

#### Company data

O/S shares :	60mn
Market cap (Rs) :	25bn
Market cap (USD) :	568mn
52 - wk Hi/Lo (Rs) :	635 / 220
Avg. daily vol. (3mth) :	236,934
Face Value (Rs) :	1

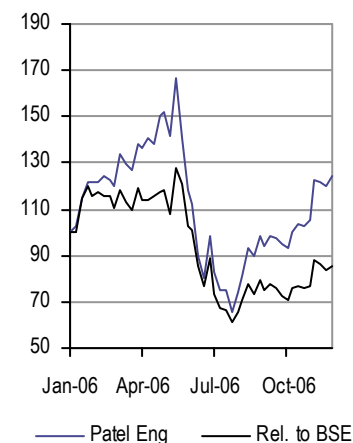
#### Share holding pattern, %

Promoters:	54.9
FII / NRI:	7.4
FI / MF:	8.5
Non Promoter Corp. Holdings:	2.6
Public & Others :	26.6

#### Price performance, %

	1mth	3mth	1yr
Abs	-0.2	23.6	86.9
Rel to BSE	-5.9	7.2	32.1

### Patel Engg vs. Sensex



Source: Bloomberg, Man Financial Research

## INVESTMENT OVERVIEW

<b>Sustainable competitive advantage</b>	Hydropower, irrigation, and microtunneling are all relatively higher margin businesses. Few players have presence and experience like Patel has in the hydro sector. It has a 25% share (participation) in the installed capacity of the nation. Plans to enter IPP in hydro and annuity road projects will help him to emerge as a developer along with the pure construction player. The two technologies viz. micro tunneling and RCC (roller compacted concrete) give the company an edge over competitors. Microtunneling is expected to be Rs 5bn/year market while RCC technology might come into the mainstream if the players like NTPC and NHPC allow its use.
<b>Financial structure</b>	Comfortable debt to equity of 1.6 in FY06. Expected to go down to 0.6 in FY07E due to equity issue. The realty business cash flows will improve the balance sheet size over next few years.
<b>Shareholder value creation</b>	Patel is expected to create shareholder value of Rs 29 per share over FY07-09 as against value destruction during FY04-FY06. Improving EBITDA margin and asset turnover is fuelling economic profit growth
<b>Earnings visibility</b>	Patel has an order book of Rs 49bn and has bid for projects worth Rs ~70bn in the hydro project space, of which at least 20% will come to it over the next one year, in our opinion. Order flow will be further strengthened as 18,000 MW of Hydro projects are expected in XIth plan. Also, unlike in the past (only A.P.), other states like Maharashtra, Rajasthan, etc. are planning irrigation schemes. The realty business, which is currently in the conceptualization stage, will soon start contributing to the earnings.
<b>Valuation</b>	It is trading at a discount to its peers in construction. But given the higher margin businesses, improving ROIC, and huge land bank, the stock should rise.
<b>Man Vs Consensus</b>	On earnings we are slightly ahead of the market.
<b>Future event triggers</b>	Foray into realty business with a land bank of 500 acres will prove to be a big push. The announcement is expected during the quarter. Higher-margin micro tunneling to be a Rs-5-bn per year market (with Patel's market share at 20%).
<b>Expected price Momentum</b>	We expect Patel to easily outperform the sector.

### Risks

- If our valuation of its realty segment is too removed from the actual, upside is limited to 23% from core earnings.
- The state irrigation projects can lead to delays in the payments resulting in higher working capital
- Entry of new players in hydro projects.
- Inorganic growth carries the risk of integration

### Rating and price target

We have used sum-of-the-parts methodology to arrive at a fair value of Rs 663. Our DCF based 12-month target for its core business is Rs 522 and for its realty business, it is Rs 141.

**We recommend BUY with a 12-month target price of Rs 663 (+56% from CMP)**

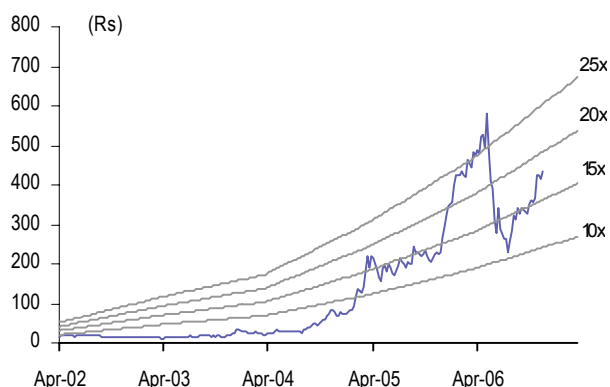
#### Sum of the parts valuation

Particulars	Value
Patel Engineering. Ltd	522
Realty Venture	141
Total	663

Source: Man financial estimates

# ABSOLUTE ROLLING VALUATION BAND CHARTS

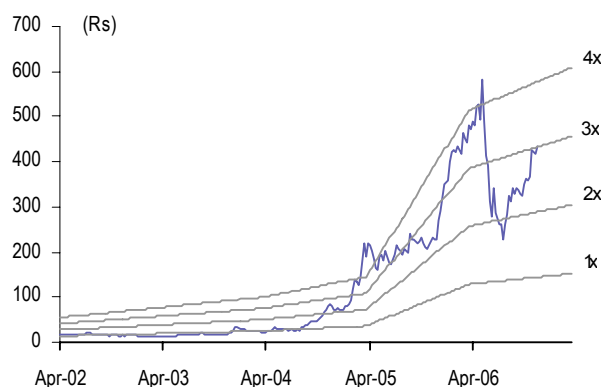
## PE band



**We believe that the upward bias in valuation parameter will come from:**

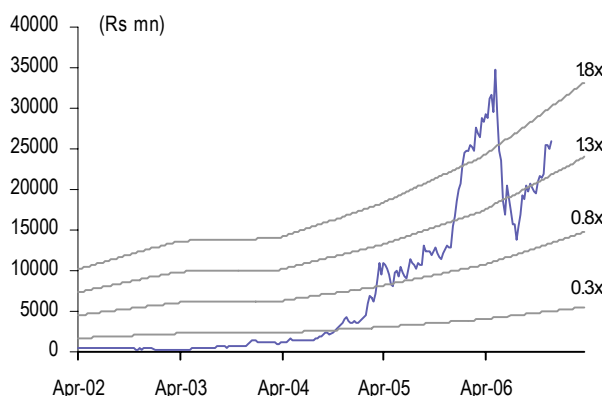
- Improvement in the already higher-than-industry EBITDA margins due to a decline in the revenue proportion from US subsidiaries, and persistence of higher margin projects
- Forthcoming venture in realty with a land bank of 500 acres

## PBV band



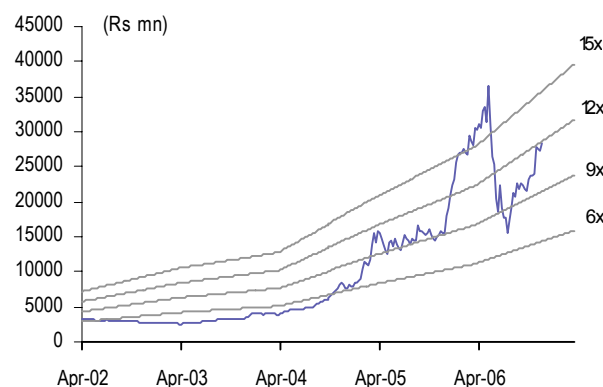
The ratio will continue to improve, given the improving return on equity and other ratios. The earnings are also expected to remain on the fast track pushing the ratio upwards.

## M-Cap/Sales band



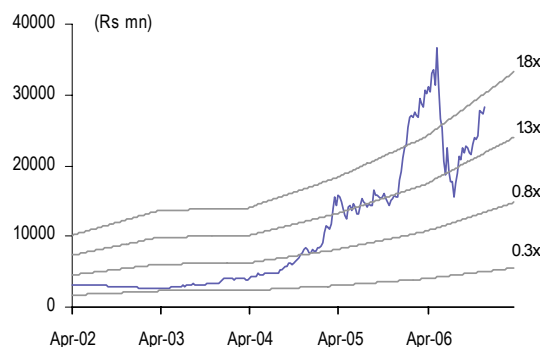
PSR has decreased due to very high growth but is expected to improve going further as due to improving higher market cap.

## EV/EBIDTA band



Likely to improve as we expect an 80bps EBITDA improving over next two years.

## EV/Sales band



The smart recovery from May lows indicates the underlying investor confidence in the company growth capabilities.

Source: Man Financial Research

## COMPARATIVE VALUATIONS

FY08E	Gammon	HCC	Patel
PER	18.0	19.0	16.2
PBR	2.6	3.0	2.9
PSR	1.2	1.1	1.2
PEG	0.9	0.3	0.5
EV/EBITDA	14.8	10.4	10.9
EV/Sales	1.5	1.2	1.6
EV/IC	3.0	NA	2.7
Orderbook/Sales	5.0	4.9	4.8
Orderbook/M-cap	1.8	2.9	2.7

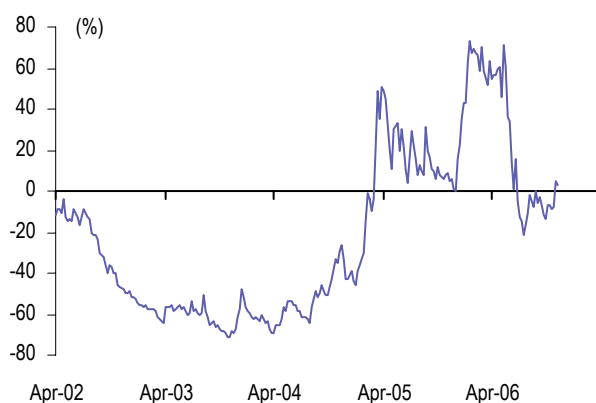
Source: Man Financial Research Estimates and Consensus

Though not exactly comparable, all these companies operate in the infrastructure space.

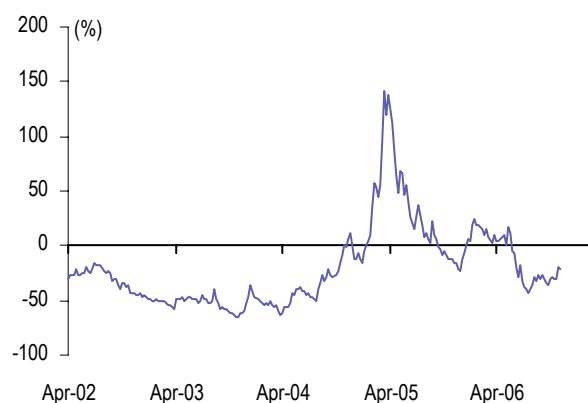
- Patel is trading at a discount on PER and EV/EBITDA basis.
- The strong order book (3.7x FY07E sales) and revenue growth expectations are not reflected in its current ratios.
- While their bigger balance sheet sizes and diverse project portfolios justify Gammon and HCC's premium multiples, Patel's focus on higher margin businesses and technology provides comfort and also upward bias in the multiples as the company grows. Moreover, the realty business will further de-risk the business model. **According to our estimates even the core earnings will give an upside of 23% from the CMP.**

## PREMIUM / DISCOUNT TO SENSEX

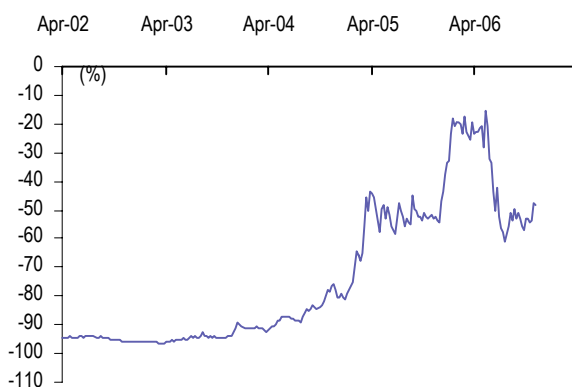
### PE



### PBV



### MCap/Sales



Source: Man Financial Research

## FAIR VALUE CALCULATION

DCF drivers	FY08	FY09	FY10	Over 20 years	FY30
Asset turnover	2.19	2.25	2.39	fading to	2.30
Pre-tax margin, %	11.3%	11.5%	11.5%	fading to	6.9%
Tax effect, %	12.5%	12.5%	12.5%	fading to	25.0%
ROIC, %	21.7%	22.6%	24.1%	fading to	11.9%
Cost of capital, %	12.2%	12.2%	12.2%	fading to	12.2%
Turnover growth, %	38.3%	31.3%	33.1%	fading to	2.5%
IC growth, %	16.6%	18.1%	34.0%	fading to	6.5%
ROIC - cost of capital, %	9.5%	10.4%	11.9%	fading to	-0.3%

Source: Company, Man Financial Research Estimates

### Core appraised value

Economic profit basis	Rs mn
PV of economic profit	19,262
PV of tax shield	4,139
Opening invested capital	8,425
Appraised value of the enterprise	
Value of non-core assets	4,440
Value of debt	(4,942)
Value of minorities	0
Appraised value of the equity	31,323
Number of shares	60
<b>Appraised share price</b>	<b>522</b>
<b>Current share price</b>	<b>426</b>

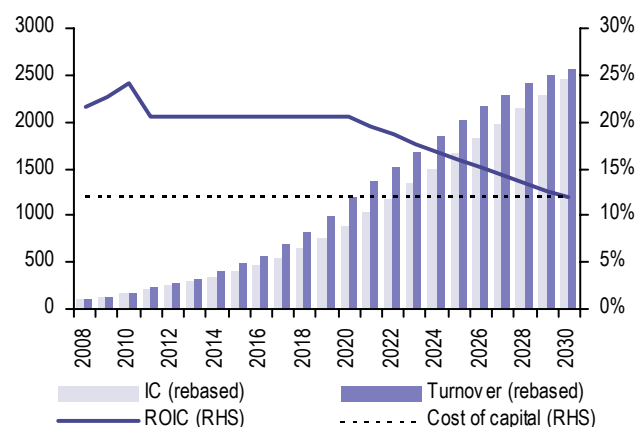
Source: Company, Man Financial Research Estimates

### Free cash flow basis

PV of Operating free cash flows	27,687
PV of tax shield	4,139
Appraised value of the enterprise	31,826
Value of non-core assets	4,440
Value of debt	(4,942)
Value of minorities	0
Appraised value of the equity	31,323
Number of shares	60
<b>Appraised share price</b>	<b>522</b>
<b>Current share price</b>	<b>426</b>

Source: Company, Man Financial Research Estimates

### DCF graph (ROIC Vs WACC)



Source: Man Financial Research Estimates

Patel owes its earnings visibility to huge investments in the infrastructure space. Improving margins and better project management will increase the spread between ROIC and WACC. But the ROIC depiction here might be lower than the actual since its investments in its JV and SPVs are depressing the ROIC in the short term. The ROIC will improve as these investments will start contributing.

Growth parameters	23-year CAGR	Explicit	Semi-explicit	Fade period
Invested Capital	16%	26%	17%	10%
Turnover	16%	32%	20%	7%
NOPLAT	12%	33%	17%	4%
% of total value		14%	57%	29%

## ASSUMPTIONS AND VALUE DRIVERS

### Core business

#### Project execution cycle

Project Year	1	2	3	4	5	Average execution
Hydropower	0%	20%	25%	25%	30%	48-60 months
Irrigation	0%	35%	35%	30%	0%	24-36 months
Transportation and others	0%	50%	50%	0%	0%	24-30 months

Particulars	FY04	FY05	FY06	FY07	FY08	FY09
Order book (current)/Audited sales	2.1	3.7	3.9	3.9	3.7	3.4
Revenue booking	7,586	7,779	10,148	13,331	18,438	24,217
Order flow	5,580	18,256	18,206	23,880	32,073	35,417
Order backlog	15,476	28,631	39,653	52,000	67,807	81,331

Working capital	FY05	FY06	FY07E	FY08E	FY09E
Debtors days	63	62	62	62	62
Creditors days	111	100	101	101	101
Inventory days	92	124	124	124	124

### Proposed realty venture

- Land distribution is closer to approximation of management inputs (given below)
- Patel will form a JV for this venture whereby they will bring in a developer or financial partners
- We have assumed that the land transfer to parents will be at a 10% discount to market price
- Land transfer, development, and realisation over a period of six years

#### Land details

Particulars	Cost/acre	Total cost	Acres	Realization / sq. ft.	Development cost	Land cost
Panvel	30	5,481	180	3,000	1,000	700
Jogeshwari	65	1,305	20	4,500	1,500	1,500
Hydrabad	30	6,090	200	2,500	1,000	700
Bangalore and others	26	2,610	100	2,500	1,000	600
<b>Total</b>	<b>31</b>	<b>15,486</b>	<b>500</b>	<b>2,760</b>	<b>1,020</b>	<b>712</b>

#### Assumptions

Land cost/sq. ft.	712
Land transfer/ sq. ft.	641
Realizable price/sq. ft.	2,760
Development cost*	1,220
Total land (mn. Sq. ft.)	22
Salable land (mn. Sq. ft.)	18
Cost of capital	14%
Patel share in JV	70%
Partner share JV	30%
<b>Discount to market price</b>	<b>10%</b>

\*Includes rs 200/sq.ft. for other developments costs

## REALTY VALUATION

We have used discounted cash flow method to arrive at value for proposed realty venture. We have consciously been conservative in our assumptions across all the parameters, as the management in the process of formulating the entire execution plan. We expect the plans to be declared during the next 1-3 months.

Based on our assumptions, we have carried out a sensitivity analysis of incremental realization over and above costs (development and land cost) as against the land transfer discount and have arrived at following values for Patel's 70% share in the realty venture.

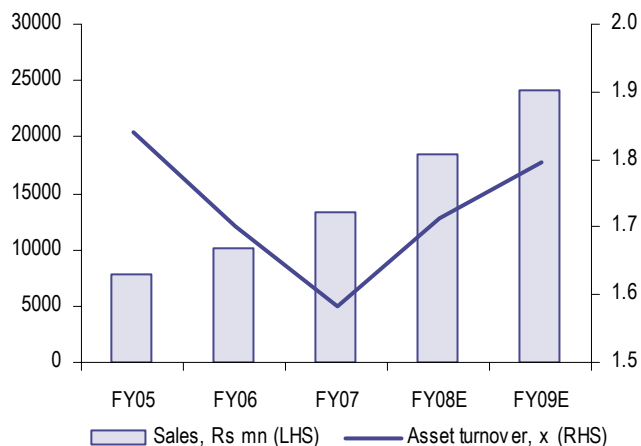
Land transfer Discount (%)	Realization growth over and above inflation (%)			
	3%	5%	7%	10%
0%	117	132	148	174
10%	125	141	157	182
15%	129	145	161	186
20%	133	149	165	191
25%	138	153	169	195

Source: Man Financial Research Estimates

As shown above the sensitivity analysis gives a value of Rs 141/share at a land transfer discount of 10% to market price and 5% higher realization than inflation.

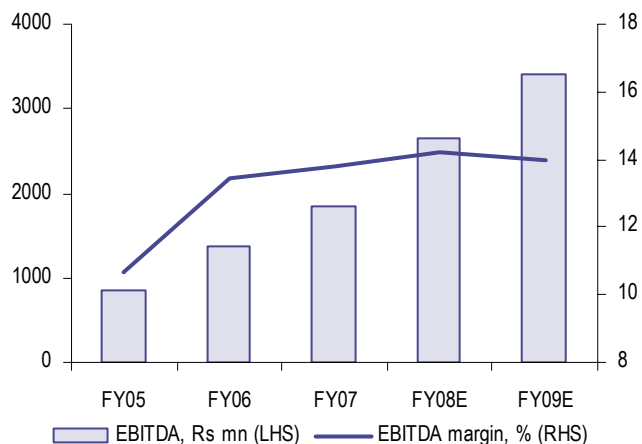
## Value creation

### Sales and asset turnover



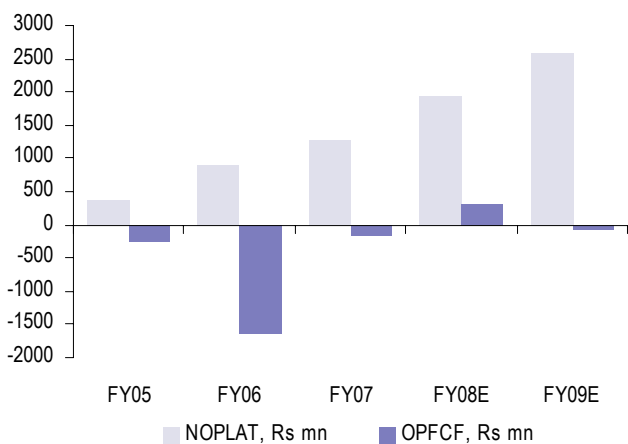
- Asset turnover is under pressure due to the incremental expected investments in the SPVs and JVs, where the revenue will come with a lag

### EBITDA and EBITDA margin



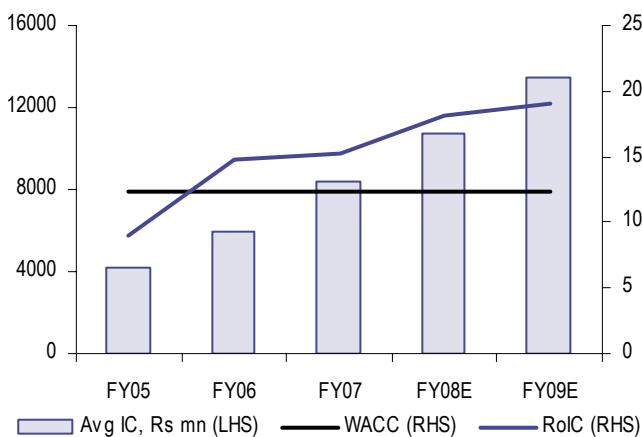
- Margin improvement is on cards due to: (1) a decline in proportion of revenue from US subsidiaries, (2) higher margin project in the order book, (3) economies of scale in play, (4) Rs 1bn revenue expected from high/very high margin micro-tunneling segment, and (5) capex on equipment will reduce its leasing costs

### Noplat and OPFCF



- Increasing NOPLAT indicates better returns on the invested capital. The very nature of the business (high working capital) will keep the OPFCFs at lower levels

### Economic profit



- Improving RoIC coupled with growing IC will lead to a 83% CAGR in economic profit over FY06-09E



## INVESTMENT THESIS

### Micro growth drivers: Strong earnings visibility with improving margins, really foray, superior technology, and inorganic growth

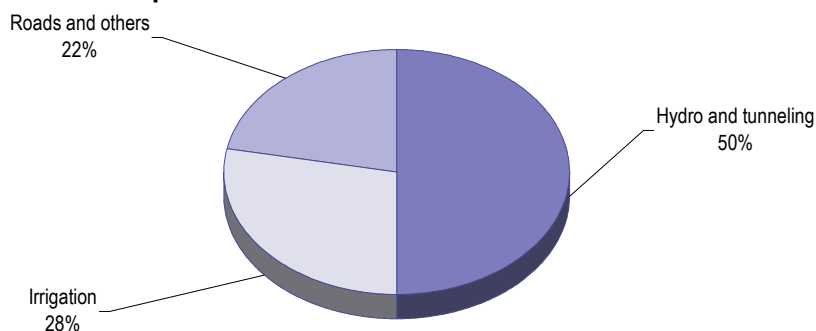
#### Strong order book and revenue outlook in the short to medium term

We expect a revenue CAGR of 33% for FY06E-09E against a 22% CAGR in FY03-06. Patel's order book stands at Rs 49bn (~5.1x last four quarters sales), which consists of hydropower projects (50%), irrigation projects (28%), and transportation and other projects (22%). With all the business segments in a medium to long investment phase, the order book and earnings visibility is very high. Planned investments in the infrastructure for power (hydro), irrigation and urban infrastructure indicates a very strong order flow over the next 3-5 years for the company. Management is confident about maintaining the project mix, indicating a sustainable and strong margin ahead. We estimate an order backlog CAGR of 20% for FY06-09 and net profit at a CAGR of 42%.

#### Order book breakup and estimates

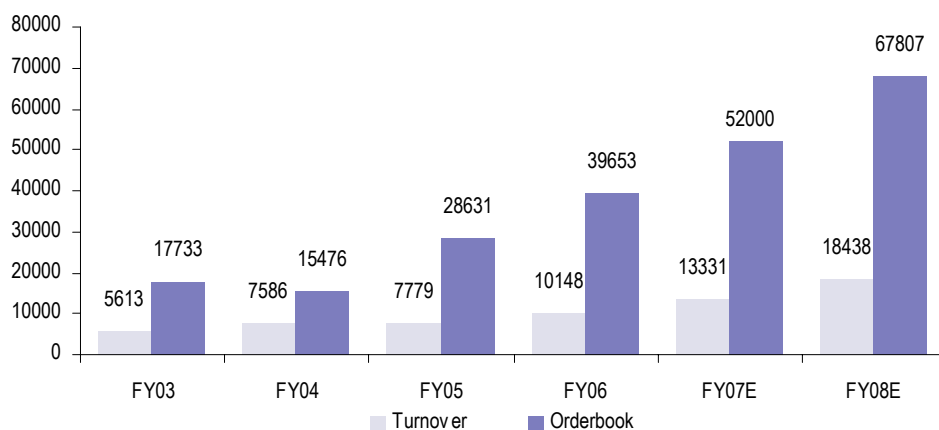
Management expects the proportion of these segments to remain same. For our estimate calculation, we have taken hydropower, irrigation, and transportation and others in the proportion 50%, 25%, and 25%, respectively.

#### Order book breakup



Source: Company, Man Financial Research

#### Order book

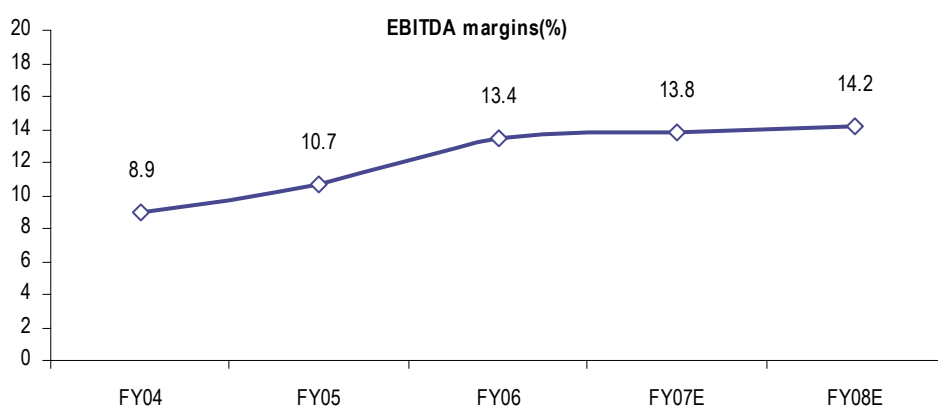


Source: Company, Man Financial Research Estimates

## Improving margins

Given the project mix, the management expects its margins to improve slightly (Patel already enjoys above-industry-average operating margins). We expect EBITDA margins to improve by 80bps over FY06-08 (we believe that we have been conservative in estimating margin improvement. This is due to the complexity of the variable impacting the operations of an infrastructure player. The EBITDA margins are expected to stabilize at these higher levels.

### Higher margins



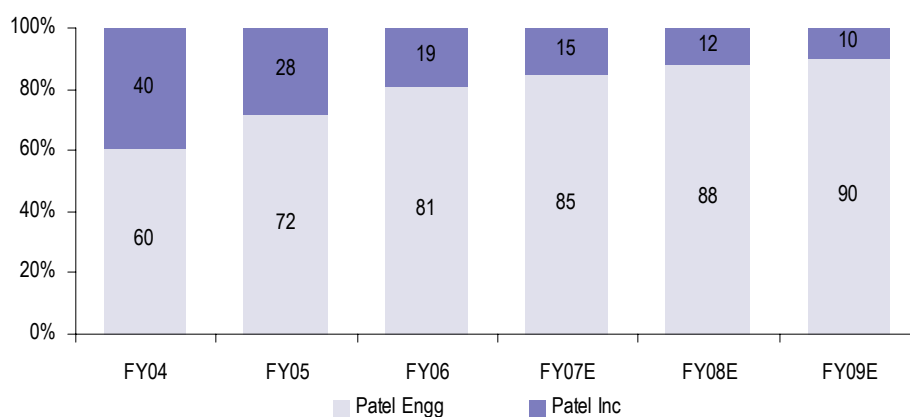
Source: Man Financial Research Estimates

We believe that the management confidence stems from the following favorable factors.

### Declining revenue contribution from lower margin US subsidiaries

Patel gets 20% revenue from its two US subsidiaries — ASI RCC and Westcon. Being in a mature market, these companies make very low EBITDA margins of around 6.5% vs. Patel Engineering's margins of 14%-15%. However, the Indian parent is growing at more than 30% while the US subsidiary is growing at less than 10%, which will result in the proportion of business from US subsidiaries falling, thus improving consolidated margins.

### Changing revenue contribution



Source: Company, Man Financial Research Estimates

### Presence in the higher margin space

Unlike most of the players operating in the construction space, Patel is a less diversified company. Due to its profitability focus, management has built expertise in areas that yield better margins like hydro, irrigation, and micro tunneling.

Project segment	Operating margins
Hydroelectric projects	18%-20%
Irrigation	12%-15%
Transportation	7%-10%
Microtunneling	20%-25%

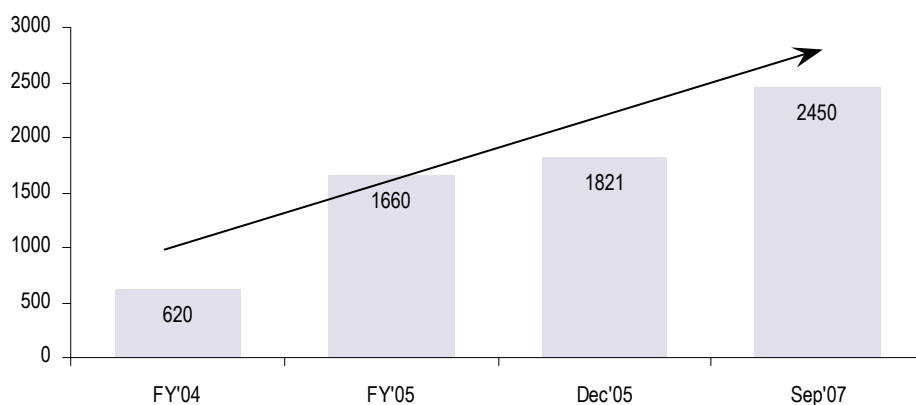
Source: Company, Man Financial Research

### Economies of scale, capex, and equipment costs

#### Improving project size

The average project size for the company has increased from Rs 620mn in FY04 to Rs 245mn (approximately) in September FY06. This helps better resource utilization and enables saving on operational costs. For example five engineers can handle a Rs 500mn project and projects that are 2-3 times bigger too.

#### Average project size



Source: Company RHP, Man Financial Research

#### Project selection

Patel's projects in the current order book have been selected in such a manner that they are bunched in terms of geography, thus reducing the overall costs by improving the synergy in terms of people, resource management, and mobilization of equipments. The list of projects in the order book is attached in the company background section.

#### Capex plans on equipments

The company is planning to spend Rs500mn/year on construction equipments over FY06-08. This will have a positive impact on margins. Leasing equipments is costlier than owning them.

## Technology advantage

Company has two technologies — micro tunneling and RCC — which give higher margins and enable faster execution of projects. The management eventually expects Rs 1bn per year from micro tunneling.

Micro tunneling allows trench-less boring of already-constructed concrete roads and other structures for laying water pipes, telecommunication wires, etc. As urban infrastructure activities gather pace, the company expects more revenue to come from this segment. Though it is currently small, this segment yields high margins of 20-25%. Thus, the company is expected to make around Rs 200–250mn EBITDA from this segment alone.

Patel has already executed the Ghatghar hydropower project using the RCC technology, ahead of its completion schedule. The technology replaces cement up to 70% by fly ash. NTPC and NHPC are studying the possibility of using the RCC technology to hasten the entire process of power generation. If this happens, it will be a big positive for Patel Engineering.

Though these technologies are not patented, the first mover advantage with rich experience and technical qualifications will help the company to maintain its leadership and margins.

## Foray into realty development

The company has a land bank of approximately 500 acres in Mumbai, Hyderabad (Gachibowli and Shamsabad), Bangalore and other cities. A detailed plan of its realty foray is expected within a quarter. This will provide a big push to valuations, given the kind of value commercial and residential properties are fetching due to huge anticipated demand over the next few years.

We believe that the realty foray will be through a Joint Venture with a realty developer with Patel taking a major stake.

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### Land details\* (approximate)

Particulars	Acres
Panvel (Mumbai)	180
Jogeshwari (Mumbai)	20
Hydrabad	200
Bangalore and others	100
<b>Total</b>	<b>500</b>

Source: Company, Man Financial Research

\* Management inputs are only city-wise

This realty foray, we believe, will bring in strong cash flows, which then can be utilized to further strengthen the core business and taking more BOT and independent power projects. A bigger balance sheet with ability to leverage it will help the company to qualify for bigger and complex projects in the core infrastructure sector. We believe that this will help the company to move to the next level in the medium term.

### **Inorganic expansion route to grow into new segments**

During its public issue, the company raised Rs 4.25bn for various purposes including Rs 1.5bn for acquiring companies in areas such as urban infrastructure. The company has already acquired a majority stake (51%) in Mumbai-based Michigan Engineering Ltd, which has qualifications and capabilities in sewers, dredging, GR lining, water supply, and other urban infrastructure-related activities. Michigan Engineering has consolidated revenues of Rs 250 mn. We expect similar small acquisitions going forward, giving the company newer revenue segments and capabilities.

### **Business strategy**

Consistent above-industry margins are a reflection of the company's focus on profitability. Its project portfolio has limited diversification with better returns and moderate risk. The project selection is also such that will improve the average project size and geographical concentration, thus pushing the operational margins further up.

## Macro growth drivers: Hydropower, irrigation, and urban infrastructure investments

### Total investments in the potential market

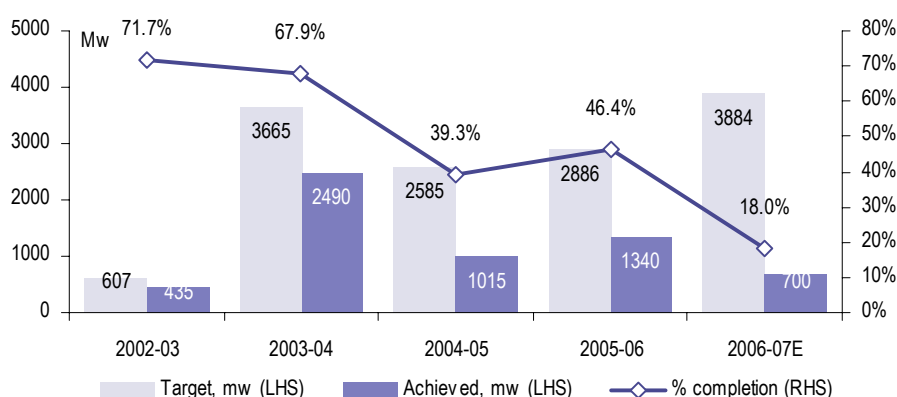
Investments (Rs billion)	2006-07E	2007-08E	2008-09E	2009-10E
Roads	253	275	297	297
Irrigation	232	250	250	250
Hydro power projects	52	116	81	123
Urban infrastructure	242	270	244	292
<b>Total construction investments</b>	<b>779</b>	<b>911</b>	<b>872</b>	<b>962</b>

Source: CrisInfac, Man Financial Research Estimates

### Hydroelectric power investments

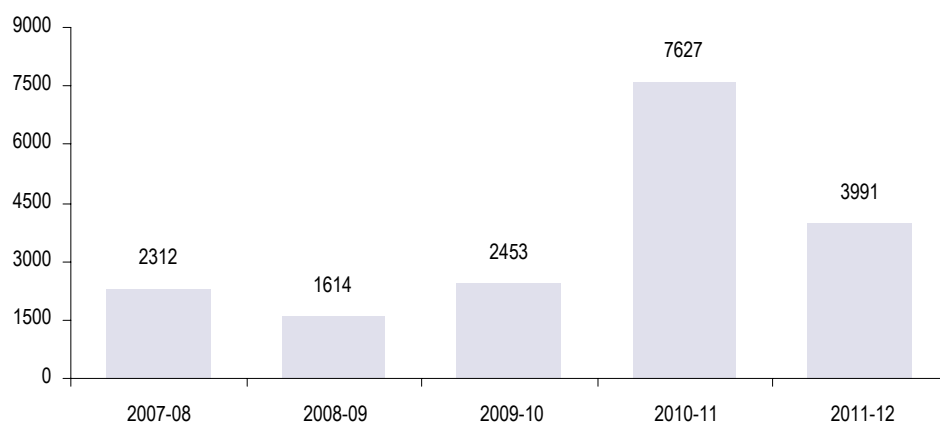
During the tenth plan, the government has planned to add a hydropower capacity of 13,627 MW, out of which only 5,980 MW has been added until September 2006. We expect approximately 3,500 MW to go on-stream in the rest of the planned period. Thus, the total percentage completion is expected to be around 70% during the 10<sup>th</sup> plan period. The rest of the projects will move to the 11<sup>th</sup> plan period. The government is planning to add 17,997 MW of hydropower in the 11<sup>th</sup> plan, which entails huge investments of Rs 900bn in the hydroelectric power generation space. Patel will be one of the major beneficiaries of these investments, as it has participated in 25% of India's 32,000 MW hydroelectric projects.

### Capacity addition during the Xth Plan (As of Sep'06)



Source: CEA, Ministry of Power

### Planned Capacity addition during XIth plan (Mw)



Source: CEA, Ministry of power

## Irrigation

Initially irrigation investments were limited mainly to Andhra Pradesh through its Rs 450bn *Jal Yagna Yojana*. Now many irrigation projects are coming up in the states like Maharashtra, Rajasthan, Gujarat, Madhya Pradesh, and Karnataka. There is no nationwide program yet, but most of the projects are assisted by the central government. India being an agrarian country, the irrigation potential is immense. The irrigation spending is more of a state-related activity. The 11<sup>th</sup> plan document envisages more than Rs 500bn for irrigation. Many such irrigation projects are and would be funded by bodies like World Bank and Asian Development Bank. The list of projects is given in Appendix-I.

### Irrigation projects status

Project status	Rs bn
Under implementation	1,120
Proposed	228
Announced	45
<b>Total</b>	<b>1,414</b>

Source: CMIE

## Various schemes of irrigation and water related activities

### Accelerated Irrigation Benefit Programme (AIBP)

In 1997, the AIBP program was introduced and 178 projects were identified with a target irrigation of 600,000 hectares. These projects will be implemented over the next few years. The government has prioritized the implementation of the remaining projects in its Budget 2006-07. The outlay for this scheme in FY07 is at Rs 71bn. The outlay in FY07 shows an increase of 58% over the outlay in FY06.

### Restoration of water bodies

India has about 500,000 lakes and ponds, which can be used for irrigation, but have fallen into disuse and require urgent repairs. The government has decided to initiate a process of repair and renovation, as well as impounding of new reservoirs, thereby using them for irrigation purposes. In Budget 2006-07, the Programme for repair, renovation, and restoration of water bodies is being implemented through pilot projects in 23 districts in 13 states. The phase-I estimated cost of Rs 45bn is to be funded by multi-lateral agencies.

### Urban water supply program

This entails an investment (provisional) of more than Rs 1.5bn for water supply systems in 2,151 towns.

### Accelerated rural water supply programme (ARWSP)

Renewal of water sources and serving homes with an infrastructure investment of Rs 26.1bn

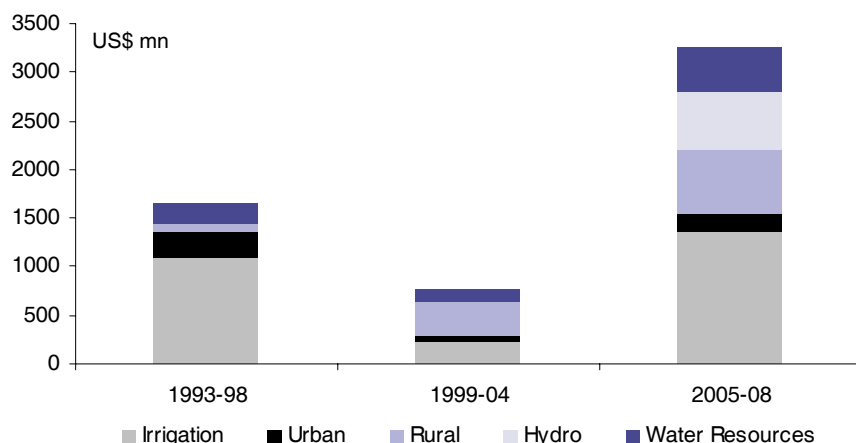
**Rajiv Gandhi drinking water mission** aims at providing drinking water to 75,000 homes.

### Support from World Bank for irrigation

The graph below shows the World Bank's assistance to India's water infrastructure sector over three periods — 1993-98, 1999-04, and 2005-08E, which clearly illustrates its focus on improving the irrigation and water supply situation in India. On an annual basis, its lending in 2005-08 is expected to be US\$ 800mn, up five-fold from US\$ 160mn in 1999-2004.

*World Bank lending in 2005-08 expected to be US\$ 800mn, up five-fold from US\$ 160mn in 1999-2004*

### World Bank's India assistance strategy – Stepping up focus



*World Bank assistance for water infrastructure projects to shoot up sharply between 2005 and 2008, compared with earlier years*

Source: World Bank

### Urban Infrastructure

Urban infrastructure will become the thrust area for central, state, and local bodies, as urbanization will increase. Urban infrastructure includes activities such as water supply systems and wastewater disposal systems. A Rs 1000bn investment is expected in the various aspects of urban infrastructure. The estimated investment will go into various aspects like water supply and treatment systems, drainage systems, wastewater management, and local transportation infrastructure



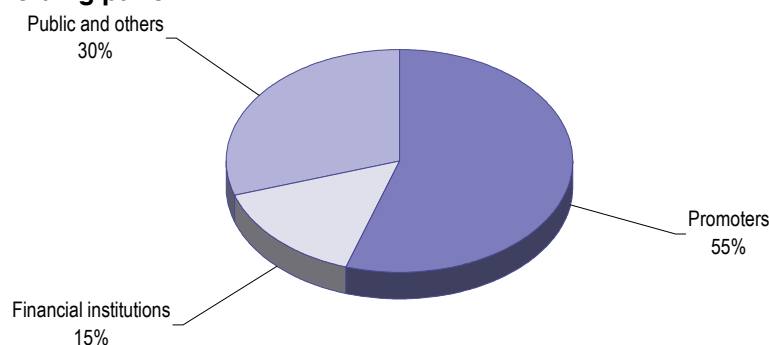
## COMPANY BACKGROUND

Established in 1949 by four entrepreneurs, the civil construction company works predominantly in the hydropower, irrigation, and transportation segments. In 1991 the company was handed over to the current promoters Pravin Patel, Rupen Patel, and Sonal Patel. Pravin Patel is the non-executive chairman while Rupen Patel is the Managing Director. Promoters hold 55% of the company.

Patel Engineering has vast experience in the construction of dams, head rest tunnels, power house structures, tell rest tunnels, lift irrigation, roads, bridges microtunneling etc. Till now it has completed/ participated in 75 dams, 30 hydro projects, 30 microtunneling projects and more than 160 kms of tunneling over last few decades. It specializes in hydro project execution where the company has participated in 25%(approximate.) in installed 32000 Mw hydropower base of the country.

The two US subsidiaries ASI RCC Inc. and Westcon microtunneling give the company foreign presence and expertise in two technologies (Roller compacted concrete and Microtunneling).

### Shareholding pattern



Source: Company

## Business Summary

### Segmental order backlog

Particulars	FY06	Sep'2006	FY08E
Hydropower	39%	50%	50%
Irrigation	37%	28%	25%
Transportation and others	23%	22%	25%

### Segmental revenues

Particulars	2006	2008E
Hydropower*	62%	47%
Irrigation	21%	21%
Transportation and others	17%	32%

Source: Man Financial Research

\*FY06 includes some projects from water supply

## Segmental cost structure

Particulars	Civil work	Electromechanical
Hydropower	70%	30%
Irrigation	50%	50%
Transportation	100%	

Source: Manfinancial research

## Subsidiary companies

### Patel Engineering Ltd

		Share
Patel Engineering Inc.	ASI RCC Inc.	85%
	Westcon Microtunneling	51%
Patel Engineering pvt. Ltd		100%
Shreenath construction pvt. Ltd.		51%
Patel Patron pvt. Ltd.		100%
Patel KNR Infrastructure pvt ltd		60%
Patel Engg Infrastrucure pvt ltd		100%
Michigan Engineers pvt ltd		51%

Source: Company

### Current projects with the company

Sr. No.	Project Name	Amount (Rs mn)
1	Turial hydroelectric project	2,883
2	Sewa hydroelectric project	1,003
3	Koyana hydroelectric project	1,980
4	Susidairies	1,000
5	600MW Kameng Hydro Electricity Project in Arunachal Pradesh	3,919
6	Irrigation Projects in AP	8,780
7	Brihanmumbai Mahanagarpalika.	184
8	Widening and strengthening of national highways	3,610
9	Nettampadu Lift - Stage I irrigation project	3,380
10	Railway tunnel project, Assam	1,100
11	Railway tunnel project, Assam	590
12	Nettampadu Lift - Stage II irrigation project	3,150
13	Parbati Hydro Electric Project Stage (III)	4,391
14	NH-7 in Karnataka	4,100
15	Municipal Corporation of Greater Mumbai (MCGM)	370
16	Loharinag Pala Hydro Electric Power Project [4x150 MW] : Head Race Tunnel	3,180
17	Rail Vikas Nigam Ltd, New Delhi.	1,760
18	Loharinag Pala Hydro Electric Power Project (4 x 150 MW) Penstock and Power House	3,600

Source: Man Financial Research, Company,

## FINANCIALS

### Income Statement

Y/E Mar, Rs mn	FY05	FY06	FY07E	FY08E	FY09E
<b>Net sales</b>	<b>7,779</b>	<b>10,148</b>	<b>13,331</b>	<b>18,438</b>	<b>24,217</b>
<i>Growth</i>	2.5%	30.4%	31.4%	38.3%	31.3%
Other income	210	135	121	128	134
Total income	7,989	10,283	13,452	18,566	24,351
Operating expenses	7,138	8,903	11,595	15,922	20,947
<b>EBITDA</b>	<b>851</b>	<b>1,380</b>	<b>1,857</b>	<b>2,644</b>	<b>3,405</b>
<i>Growth</i>	21.4%	62.1%	34.5%	42.4%	28.8%
<i>Margin</i>	10.7%	13.4%	13.8%	14.2%	14.0%
Depreciation	266	311	376	428	491
<b>EBIT</b>	<b>585</b>	<b>1,069</b>	<b>1,481</b>	<b>2,216</b>	<b>2,914</b>
<i>Growth</i>	30.2%	82.7%	38.6%	49.6%	31.5%
<i>Margin</i>	7.5%	10.5%	11.1%	12.0%	12.0%
Interest paid	96	261	200	374	478
<b>Pre-tax profit</b>	<b>489</b>	<b>808</b>	<b>1,281</b>	<b>1,842</b>	<b>2,437</b>
Tax provided	68	66	160	230	305
<b>Profit after tax</b>	<b>421</b>	<b>742</b>	<b>1,121</b>	<b>1,611</b>	<b>2,132</b>
<b>Net profit</b>	<b>421</b>	<b>742</b>	<b>1,121</b>	<b>1,611</b>	<b>2,132</b>
<b>Man net profit</b>	<b>416</b>	<b>733</b>	<b>1,121</b>	<b>1,611</b>	<b>2,132</b>
<i>Growth</i>	49.1%	76.4%	52.9%	43.8%	32.3%
Unadj. shares (m)	49	50	60	60	60
Wtd avg shares (m)	49	50	60	60	60

### Cash Flow

Y/E Mar, Rs mn	FY05	FY06	FY07E	FY08E	FY09E
Pre-tax profit	489	808	1,281	1,842	2,437
Depreciation	160	21	321	370	428
Chg in working capital	(612)	(2,169)	(1,325)	(1,500)	(2,486)
Total tax paid	72	68	66	160	230
Other operating activities	1	(69)	(94)	(70)	(74)
<b>Cash flow from operating activities</b>	<b>62</b>	<b>(1,216)</b>	<b>318</b>	<b>856</b>	<b>553</b>
Capital expenditure	(310)	(411)	(490)	(536)	(629)
Chg in investments	(197)	39	(900)	(600)	(500)
Interest/ dividend income	17	53	201	78	105
Other investing activities	(1)	(30)	-	-	-
<b>Cash flow from investing activities</b>	<b>(492)</b>	<b>(349)</b>	<b>(1,189)</b>	<b>(1,058)</b>	<b>(1,024)</b>
Free cash flow	(430)	(1,565)	(871)	(202)	(471)
Equity raised/(repaid)	(12)	13	4,536	(22)	(34)
Debt raised/(repaid)	1,239	1,590	(611)	106	1,509
Dividend (incl. tax)	(55)	(77)	(118)	(169)	(224)
Interest expense	(113)	(314)	(401)	(452)	(583)
<b>Cash flow from financing activities</b>	<b>1,060</b>	<b>1,212</b>	<b>3,406</b>	<b>(537)</b>	<b>669</b>
Net chg in cash	630	(353)	2,534	(739)	198

## Balance Sheet

As at 31st Mar, Rs mn	FY05	FY06	FY07E	FY08E	FY09E
Cash & bank	1,075	722	3,256	2,516	2,714
Marketable securities at cost	-	-	-	-	-
Debtors	1,349	1,714	2,264	3,132	4,114
Inventory	1,794	3,031	3,939	4,712	6,374
Loans & advances	1,597	2,568	3,360	4,647	6,104
Other current assets	11	15	1	1	1
<b>Total current assets</b>	<b>5,825</b>	<b>8,049</b>	<b>12,821</b>	<b>15,009</b>	<b>19,307</b>
Investments	322	284	1,184	1,784	2,284
Net fixed assets	2,040	2,430	2,599	2,764	2,965
Non-current assets	2,362	2,714	3,782	4,548	5,249
<b>Total assets</b>	<b>8,187</b>	<b>10,763</b>	<b>16,603</b>	<b>19,557</b>	<b>24,555</b>
Current liabilities	2,368	2,788	3,689	5,102	6,701
Provisions	36	25	37	51	66
<b>Total current liabilities</b>	<b>2,405</b>	<b>2,813</b>	<b>3,725</b>	<b>5,153</b>	<b>6,768</b>
Non-current liabilities	3,963	5,553	4,942	5,049	6,558
<b>Total liabilities</b>	<b>6,368</b>	<b>8,366</b>	<b>8,668</b>	<b>10,201</b>	<b>13,325</b>
Paid-up capital	49	50	60	60	60
Reserves & surplus	1,282	1,957	7,486	8,906	10,780
Shareholders' equity	1,505	2,174	7,714	9,133	11,008
<b>Total equity &amp; liabilities</b>	<b>8,187</b>	<b>10,763</b>	<b>16,603</b>	<b>19,557</b>	<b>24,555</b>

## Per-share data

	FY05	FY06	FY07E	FY08E	FY09E
MAN EPS (INR)	6.9	12.2	18.7	26.9	35.5
<i>Growth</i>	49.1%	76.4%	52.9%	43.8%	32.3%
Book NAV/share (INR)	25.1	36.2	128.6	152.2	183.5
FDEPS (INR)	6.9	12.2	18.7	26.9	35.5
CEPS (INR)	11.4	17.4	23.5	32.5	42.2
CFPS (INR)	10.5	-5.9	42.2	-12.3	3.3
DPS (INR)	0.9	1.3	2.0	2.8	3.7

## Financial structure

	FY05	FY06	FY07E	FY08E	FY09E
Operating cash flow/Total debt (x)	0.02	(0.22)	0.06	0.17	0.08
Total debt/Equity (x)	2.63	2.55	0.64	0.55	0.60
Net debt/Equity (x)	1.92	2.22	0.22	0.28	0.35

## Profitability, Productivity, Liquidity and Valuation Ratios

	FY05	FY06	FY07E	FY08E	FY09E
Return on assets (%)	5.1	6.8	6.8	8.2	8.7
Return on equity (%)	27.6	33.7	14.5	17.6	19.4
Return on Invested capital (%)	9.0	14.8	15.3	18.1	19.0
RoIC/Cost of capital (x)	0.7	1.2	1.3	1.5	1.6
RoIC - Cost of capital (%)	-3.1	2.6	3.1	5.9	6.9
Return on capital employed (%)	8.8	12.5	10.3	13.8	14.7
Cost of capital (%)	12.2	12.2	12.2	12.2	12.2
RoCE - Cost of capital (%)	-3.3	0.3	-1.9	1.6	2.5
Asset turnover (x)	1.8	1.7	1.6	1.7	1.8
Sales/Total assets (x)	1.0	1.0	0.8	0.9	1.0
Sales/Net FA (x)	3.8	4.2	5.1	6.7	8.2
Working capital/Sales (x)	0.4	0.5	0.7	0.5	0.5
Fixed capital/Sales (x)	0.3	0.2	0.2	0.1	0.1
Receivable days	63	62	62	62	62
Inventory days	92	124	124	124	124
Payable days	111	100	101	101	101
Current ratio (x)	2.5	2.9	3.5	2.9	2.9
Quick ratio (x)	1.7	1.8	2.4	2.0	1.9
Interest cover (x)	6.1	4.1	7.4	5.9	6.1
PSR(x)	3.3	2.5	1.9	1.4	1.1
PER (x)	61.5	34.9	22.8	15.9	12.0
PEG (x) - y-o-y growth	0.8	0.7	0.5	0.5	0.4
PCE (x)	37.5	24.5	18.1	13.1	10.1
PCF (x)	40.6	(72.4)	10.1	(34.6)	129.3
Price/Book (x)	17.0	11.8	3.3	2.8	2.3
Yield (%)	0.5	0.3	0.5	0.7	0.9
EV/Net sales (x)	3.4	2.8	2.0	1.5	1.2
EV/EBITDA (x)	31.2	20.6	14.7	10.6	8.6
EV/EBIT (x)	45.4	26.6	18.4	12.7	10.1
EV/NOPLAT (x)	69.4	32.2	21.2	14.4	11.5
EV/CE	5.3	4.1	2.6	2.1	1.8
EV/IC (x)	6.3	4.8	3.2	2.6	2.2

Source: Company, Man Financial Research Estimates

## APPENDIX - I

The following table shows a list of projects in the announced and proposed stages. While estimated cost for some project is not available, the total expected costs in these projects taken together is around Rs 250bn.

Company Name	Project Name	Project Cost (Rs mn)
<b>Announcement stage</b>		
Government Of Andhra Pradesh	Galeru Nagari Sujala Sravanthi Project	34,500
Government Of Andhra Pradesh	Handri-Neeva Project	13,000
Government Of Andhra Pradesh	Indirasagar (Rudramkota) Lift Irrigation Project	-
Government Of Andhra Pradesh	Krishna Delta Irrigation Project	6,552
Government Of Andhra Pradesh	Mahabubnagar Irrigation Tank Project	330
Government Of Andhra Pradesh	Nagarjunasagar Tail Pond Dam Project	4,647
Government Of Andhra Pradesh	Pedda Vagu Irrigation Project	457
Government Of Andhra Pradesh	Sripadsagar Irrigation Project	9,000
Government Of Andhra Pradesh	Varakapudisila Lift Irrigation Project	1,500
Government Of Himachal Pradesh	Renuka Dam Project	12,240
Cauvery Neeravari Nigam Ltd.	Gulur -Hebbur Lift Irrigation Project	385
Cauvery Neeravari Nigam Ltd.	Honnvallli Lift Irrigation Project	175
Cauvery Neeravari Nigam Ltd.	Kabini Lift Irrigation Project	7,020
Cauvery Neeravari Nigam Ltd.	Lokapavani Lift Irrigation Project	470
Cauvery Neeravari Nigam Ltd.	Sriranga Lift Irrigation Project	960
Government Of Karnataka	Amrutapur And Umrani Irrigation Project	960
Government Of Karnataka	Gandorinala Irrigation Project	900
Government Of Karnataka	Harinala Irrigation Project	260
Government Of Karnataka	Hebbur-Guloor Hobli Lift Irrigation Project	330
Government Of Karnataka	Markandeya Irrigation Project	940
Kerala Minerals & Metals Ltd.	Desalination Project	500
Government Of Madhya Pradesh	Lower Goi Irrigation Project	1,900
Government Of Madhya Pradesh	Punasa Lift Irrigation Project	1,850
Government Of Madhya Pradesh	Sutiapat Tank Irrigation Project	153
Government Of Madhya Pradesh	Uribagh Irrigation Project	189
Godavari Marathwada Irrigation Devp	Lower Dudhana Irrigation Project	-
Government Of Maharashtra	Amboli Irrigation Project	155
Government Of Maharashtra	Lendi Medium Irrigation Project	2,760
Government Of Maharashtra	Sungadewadi Irrigation Project	360
Punjab Urban Devp. Authority	Mohali Canal Water Project	1,000
Government Of Rajasthan	Garrda Irrigation Project	395

Contd...

Company Name	Project Name	Project Cost (Rs mn)
<b>Proposed</b>		
Government Of Andhra Pradesh	Andhra Flood Flow Canal Project	13,310
Government Of Andhra Pradesh	Gandikota Lift Irrigation Project	1,400
Government Of Andhra Pradesh	Gundlakamma Irrigation Project	1,650
Government Of Andhra Pradesh	Kalwakurti Lift Irrigation Project	-
Government Of Andhra Pradesh	Nizamsagar Modernisation Project	205
Government Of Andhra Pradesh	Pulivendula Branch Canal Modernisation Project	1,430
Government Of Andhra Pradesh	Rajiv Sagar (Dummugudem) Irrigation Project	34,500
Government Of Andhra Pradesh	Ramatirtham Irrigation Project	430
Government Of Andhra Pradesh	Sriramsagar Stage - I I Project	7,165
Government Of Andhra Pradesh	Surapalem Reservoir Phase Ii Project	495
Government Of Andhra Pradesh	Thotapalli Barrage-Cum-Reservoir Project	4,620
Government Of Andhra Pradesh	Ulchi Irrigation Project	-
Government Of Andhra Pradesh	Velugonda Irrigation Project	9,790
Government Of Assam	Carufella Irrigation Project	366
Government Of Assam	Durisuti Irrigation Project	314
Government Of Delhi	Munak-Delhi Canal Project	3,148
Ahmedabad Municipal Corpn.	Sabarmati River Front Devp. Project	3,880
Government Of Gujarat	Machchhu I I I Dam Project	320
Government Of Gujarat	Sujalam-Sufalam Canal-Kadana Reservoir Project	4,650
Government Of Himachal Pradesh	Changer Medium Lift Irrigation Project	284
Government Of Jharkhand	Dhanbad Water Supply Project	-
Government Of Karnataka	Irrigation Tanks Project	6,780
Government Of Karnataka	Varahi Irrigation Project	3,450
Chemfab Alkalis Ltd.	Sea Water Desalination Plant Project	300
Government Of Rajasthan	Bhawalia Irrigation Project	29
Government Of Rajasthan	Chacha Khedi Irrigation Project	19
Government Of Rajasthan	Sarsi Ka Naka Irrigation Project	28
Chennai Metropolitan Water Supply	Chennai Sea Water Desalination Project	15,500
Nuclear Power Corpn. Of India Ltd.	Sea Water Desalination Project	1,000
Tamil Nadu Water Supply & Drainage Board	Ramnad Desalination Project	207
Government Of Rajasthan	Machlana Irrigation Project	36
Government Of Uttaranchal	Decentralized Watershed Development Project	4,050

Source: CMIE Capex

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### Institutional Cash Equity Dealing

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