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Green bond considerations in the renewable energy sector

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Abstract

Greening the economy is an important strategy with which to combat climate change and to prevent worst case scenarios. A green transformation has manifold dimensions, the most important of which is to reduce carbon emissions and to secure sustainable energy for all. This includes offering secure universal access to modern energy supplies, doubling the share of renewable energy in the global energy mix, increasing energy efficiency, and phasing out inefficient fossil fuel subsidies. A special focus has to be on developing countries and emerging economies for two reasons. First, these countries will suffer exceptionally from climate change. Second, due to the projected growth of these country groups and the related increase in emissions, combined with the strong path dependencies of the infrastructure investment decisions that are to be taken, it is crucial to select the green pathway right now and avoid lock-in effects. The present paper envisages the expectation of the international community and the domestic investors in Green bonds and concludes by focusing on the realistic return these bonds can offer to its investors.

Keywords: The Green Bond Principles, The Green Bond eligible projects, The Green Bond proceeds, The Green Investment report, The Climate Policy Initiative

Introduction

Green Bonds enable capital-raising and investment for new and existing projects with environmental benefits. Recent activity indicates that the market for Green Bonds is developing rapidly. The Green Bond Principles (GBP) is voluntary process, guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond. This paper gives a short introduction to the challenge of mobilizing the required resources, particularly from private and institutional investors. It provides an overview of public leveraging instruments that can be used to leverage private capital for green investments. Currently, there are 77 Green Bond eligible projects supported by Green Bond proceeds. The total committed amount for these projects is US\$13.7 billion.

The GBP include guidelines for: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, and Reporting. There is diversity of opinion on the definition of Green Projects; therefore it is not the intent of the GBP to opine on the eligible Green Project categories. The GBP recommend issuers communicate their Use of Proceeds categories clearly so that investors can determine the bond's consistency with their investment strategy. The transparency and disclosure recommended by the GBP are intended to provide the informational basis for the market to increase capital allocation to environmentally beneficial purposes without any single authority or gate keeper.

Moorad Choudhry & Michele Lizico (June 2004) aims to experience practitioners in the corporate bond market and provides with specialized text for investors and traders. It talks about latest techniques used for analysis and interpretation including relative value trading, approaches to trading and hedging, dynamic analysis of spot and forward rates, interest rate modeling, fitting the yield curve, analyzing the long bond yield, index linked bond analytics, corporate bond defaults and aspects of advanced analysis for experienced bond practitioners to put them in a position to explore newer initiatives in bond issues.

Frank J Fabozzi (Jan 2010) prepares to analyze the bond market and manage bond portfolios without getting bogged down in theory. It educates one about the latest development in structured products (mortgage- backed securities and collateralized debt obligations and credit derivatives) and explores the green bond issues segment.

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The Green Investment Report (2013) covers the period of the time when extreme weather events are coming with increasing frequency—and an increased price tag for clean-up—cash-strapped governments are seeking new solutions to build climate resilience. It concludes with a series of recommendations for investors and governments to scale up these successes to close the green investment gap.

In the Climate Policy Initiative (CPI), David Nelson et. al (Dec 2012) highlights on the impact of policy on the financing of renewable projects, supporting renewable while saving tax payers money and improving effectiveness in climate finance. Analysis shows that renewable energy policy lessons from the U.S. and Europe may not apply to India's financial realities. The economy and financial markets in which renewable energy policies operate partly determine the effectiveness of these policies. The significant differences between India and developed world financial markets, including the high cost of debt and what that means for the impact of policy, means that policy levers used to decrease financing costs in the U.S. and Europe have a less impact in India. CPI proposes to investigate potential policy solutions to bring lower cost, long-term debt into the Indian renewable energy market.

The precipitous fall in oil prices, continued geopolitical instability and the ongoing climate negotiations are witness to the dynamic nature of energy markets. In a time of uncertainty, understanding the implications of the shifting energy landscape for economic and environmental goals and for energy security is vital. The World Energy Outlook (2015) presents updated projections for the evolution of the global energy system to 2040. The report examines the implications for markets, policies, investment, the fuel mix and emissions if oil prices stay lower for longer. The report also assesses the multiple challenges and opportunities facing India as it develops the resources and infrastructure to meet rapidly rising energy demand.

Under the present circumstances there is a need for undertaking a study on green bonds because, considerable amounts of capital will be necessary if a green transformation is to be financed in the coming years. Additionally, more data transparency and quantitative research are needed to better assess the implications of the use of these instruments. Finally, it points out research gaps and proposes ideas for further research.

In the Indian Context, the key benefit of this bond is managing asset liability. At present, the main challenge faced by scheduled commercial banks is the lack of long-term liquidity in the renewable energy market, which discourages them from issuing long-term loans to the sector.

Green Bonds can address this challenge by allowing financial institutions to raise long term capital from the market. These bonds can securitize project portfolios at a certain stage of maturity, thereby allowing financial institutions to overcome asset-liability mistakes.

The objective of this paper is to find out ways and means to make the Green Bond Issues in India more attractive.

1. To study the primary challenge in the Indian green bond market which deters foreign investment.
2. To analyze the Credit rating of these bonds from an investors perspective.
3. To study the prospect of the return to investors of green bonds in Indian market vis-à-vis their return on the investment.

Concluding Observations

Internationally we have a broad consensus on the need to change our unsustainable ways of living and to restructure our economies in a way that the planetary boundaries are respected. The transformation towards a sustainable economy, i.e. a green transformation, is not only crucial for combating climate change, but also for improving the health conditions and the security of energy supply for hundreds of millions of people. Moreover, it can help to reduce costs for adaptation to climate extremes. The international community agreed and adopted a 2°C increase in global temperature target. Global warming beyond this threshold was considered to trigger serious environmental damage with catastrophic consequences for the planet, as well as for mankind. A recent report of the World Bank (2012b) describes the scenario of a 4°C warmer climate with its cataclysmic changes and consequences for hundreds of millions of people.

Bonds issued by Indian Banks, Renewable Energy Companies and Financial Institutions are trying their best to develop it as a niche market. However, encouragement by Government has to be brought for green bonds like the kind of support that the World Bank and IFC. These bonds receive special treatment from RBI as Priority Sector Lending. A major hindrance can be attributed to the country's low sovereign rating (BBB as per Standard & Poor's) which does not make it an attractive option for both foreign and domestic investors to invest in Indian Green Bonds, despite the rapidly expanding renewable energy market. However these bonds issued so far is getting a credit rating of AA+.

The Government machinery also on its own is also encouraging financing of RE projects through green bonds. They are laying special emphasis to it like revival of DISCOM's through UDAY. People investing in green bonds are doing it for the long term, a short term investor is unable to exit the market as the RE projects are for a longer period, much longer than infrastructural projects.

The coupon rate is pegged at 8.15% to 8.55% which is leading to oversubscription by almost double the amount. The IRR of RE projects vary from 13% to 15%, maybe a better margin can be offered to attract domestic and foreign investors who would prefer to inject money in the green bonds market rather for long term returns especially pension and life insurance funds. Ministry should ensure that rate of returns are high so that Indian and Foreign investors are ready to invest in Green Bonds in India without any inhibitions. This can be achieved by improving the advantages of gross and net metering and rationalizing the same across the country.

To conclude one can infer that the Indian Green Bond market has a long way to go, to make it more attractive, with active support from the Government. The Green Bond market can be nicely developed by making the returns more attractive so that the Prime Minister's dream of 100GW Solar and 60 GW Wind can be achieved on time. Therefore attractive long term funding is required to make the bond more competitive, so that the company's as well as the country's target is also accomplished.

Project : 6.3 MW Wind Power Project																						
Profit & Loss Account (Rs. In Mn)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulars	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37	
Year Ending	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37	
No. of Hours of Operation	8,760	8,760	8,760	8,784	8,760	8,760	8,760	8,784	8,760	8,760	8,760	8,784	8,760	8,760	8,760	8,784	8,760	8,760	8,760	8,784	(1,416)	
Gross Generation (MU)	0.93	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	15.53	14.60
HT tariff	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Revenues from sale of energy	4.19	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	69.89	65.70
O&M cost	0.00	0.00	0.00	8.39	8.81	9.25	9.71	10.19	10.70	11.24	11.80	12.39	13.01	13.66	14.34	15.06	15.81	16.61	17.44	18.31	-3.11	
Insurance cost	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	-0.07
S & F Cost	0.00	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.37	0.38	0.40	0.42	0.45	0.47	0.49	0.52	
Lease Rental	0.00	0.00	0.00	0.21	0.23	0.23	0.25	0.25	0.28	0.28	0.30	0.30	0.33	0.33	0.37	0.37	0.40	0.40	0.44	0.44	0.49	
Other cost	0.00	0.00	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	-0.03
Total Operating Expenses	0.46	0.66	0.67	9.46	9.91	10.36	10.86	11.36	11.91	12.46	13.06	13.67	14.33	15.00	15.74	16.47	17.28	18.09	18.99	19.88	-2.21	
EBITDA	3.74	69.23	69.22	60.43	59.98	59.53	59.03	58.53	57.99	57.44	56.83	56.23	55.56	54.89	54.16	53.42	52.61	51.80	50.90	50.01	67.90	
Interest	18.42	36.66	35.07	32.24	29.40	26.57	23.73	20.90	18.07	15.23	12.40	9.56	6.73	3.90	1.06	-	-	-	-	-	-	-
Profit before depreciation & tax (PBDT)	(14.68)	32.57	34.15	28.20	30.58	32.96	35.30	37.63	39.92	42.20	44.43	46.66	48.83	50.99	53.09	53.42	52.61	51.80	50.90	50.01	67.90	
Depreciation (As Per Company Law)	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.27	0.00	0.00	0.00	
Profit before tax (PBT)	(38.14)	9.11	10.70	4.74	7.13	9.51	11.85	14.18	16.47	18.75	20.98	23.21	25.38	27.54	29.64	29.97	29.16	28.52	50.90	50.01	67.90	
Income tax on windmill profits	0.00	0.00	0.00	8.53	10.34	11.36	12.21	13.02	13.81	14.61	15.38	16.15	16.90	0.00	0.00	18.49	18.21	17.93	17.62	17.31	23.50	
Profit after tax (PAT)	(38.14)	9.11	10.70	(3.78)	(3.21)	(1.85)	(0.36)	1.16	2.65	4.15	5.60	7.06	8.48	27.54	29.64	11.48	10.95	10.60	33.29	32.70	44.40	
Tax break due to additional Tax Depreciation	81.94	57.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adjusted Total Net Profit	43.80	67.02	10.70	(3.78)	(3.21)	(1.85)	-0.36	1.16	2.65	4.15	5.60	7.06	8.48	27.54	29.64	11.48	10.95	10.60	33.29	32.70	44.40	

Financial Performance Parameters**Project IRR (Pre Tax)**

Particulars	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37
Profit before tax	(38.14)	9.11	0.70	4.74	7.13	9.51	11.85	14.18	16.47	18.75	20.98	23.21	25.38	27.54	29.64	29.97	29.16	28.52	50.90	50.01	67.90
Depreciation	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.27	-	-	-

Interest	18.42	36.66	35.07	32.24	29.40	26.57	23.73	20.90	18.07	15.23	12.40	9.56	6.73	3.90	1.06	-	-	-	-	-	-	
Residual Value																					-	35.69
Investment	434.77)	(22.9)																				
Cash flow before tax	431.04)	46.35	69.22	60.43	59.98	59.53	59.03	58.53	57.99	57.44	56.83	56.23	55.56	54.89	54.16	53.42	52.61	51.80	50.90	50.01	103.60	
Project XIRR (Pre Tax)																						
12.087%																						

Project IRR (Post Tax)																					
Particulars	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37
Cash Flow before tax	431.04)	46.35	69.22	60.43	59.98	59.53	59.03	58.53	57.99	57.44	56.83	56.23	55.56	54.89	54.16	53.42	52.61	51.80	50.90	50.01	103.60
Tax break due to accelerated depreciation	81.94	57.90	-	-	-	-	-														
Income Tax	-	0.00	0.00	8.53	10.34	11.36	12.21	13.02	13.81	14.61	15.38	16.15	16.90	0.00	0.00	18.49	18.21	17.93	17.62	17.31	23.50
Cash flow after tax	(349.10)	104.25	69.22	51.90	49.64	48.17	46.83	45.51	44.17	42.83	41.45	40.08	38.66	54.89	54.16	34.93	34.40	33.87	33.29	32.70	80.10
Project XIRR (Post Tax)																					
15.499%																					
DSCR Calculations																					
Particulars	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37
Cash Flow	85.68	127.13	69.22	51.90	49.64	48.17	46.83	45.51	44.17	42.83	41.45	40.08	38.66	54.89	54.16	34.93	34.40	33.87	33.29	32.70	44.40
Interest+ Repayment	18.42	42.83	59.71	56.88	54.05	51.21	48.38	45.54	42.71	39.88	37.04	34.21	31.37	28.54	19.55	-	-	-	-	-	-
DSCR	4.65	6.90	1.16	0.91	0.92	0.94	0.97	1.00	1.03	1.07	1.12	1.17	1.23	1.92	2.77						
Average DSCR 1.85																					

Book depreciation calculations (Rs. In Mn)																					
Particulars	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37
Opening block	444.17	420.72	397.27	373.82	350.36	326.91	303.46	280.01	256.56	233.10	209.7	186.2	162.7	139.29	115.84	92.39	68.94	45.48	22.21	22.21	22.21
Depreciation	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.5	23.5	23.5	23.45	23.45	23.45	23.45	23.27	-	-	-
Accumulated Depreciation	23.45	46.90	70.36	93.81	117.26	140.71	164.17	187.62	211.07	234.52	258.0	281.4	304.9	328.33	351.79	375.24	398.69	421.97	422.0	422.0	422.0
Closing block	420.72	397.27	373.82	350.36	326.91	303.46	280.01	256.56	233.10	209.65	186.2	162.7	139.3	115.84	92.39	68.94	45.48	22.21	22.21	22.21	22.21
Residual Value																				-	35.69
Tax calculations (Rs. In Mn)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Particulars	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30	Mar-31	Mar-32	Mar-33	Mar-34	Mar-35	Mar-36	Jan-37

Profit before Tax	(38.14)	9.11	10.70	4.74	7.13	9.51	11.85	14.18	16.47	18.75	20.98	23.21	25.38	27.54	29.64	29.97	29.16	28.52	50.90	50.01	67.90
Add: Book Depreciation	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.45	23.27	0.00	0.00	0.00
Gross Income	(14.68)	32.57	34.15	28.20	30.58	32.96	35.30	37.63	39.92	42.20	44.43	46.66	48.83	50.99	53.09	53.42	52.61	51.80	50.90	50.01	67.90
Less Tax depreciation as per IT Act	222.09	199.88	17.77	3.55	0.71	0.14	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Taxable Income from Energy Business	36.77)	67.31)	16.38	24.64	29.87	32.82	35.27	37.63	39.92	42.20	44.43	46.66	48.83	50.99	53.09	53.42	52.61	51.80	50.90	50.01	67.90
Carry forward loss		(236.77)	(404.09)	(387.70)	(363.06)	(333.19)	(300.37)	(265.10)	(227.47)	(187.56)	(145.35)	(100.92)	(54.26)	(5.43)	45.56						
Income after adjusting carry forward loss	(236.77)	(404.09)	(387.70)	(363.06)	(333.19)	(300.37)	(265.10)	(227.47)	(187.56)	(145.35)	(100.92)	(54.26)	(5.43)	45.56	98.65						
80IA Applicable	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Taxable Income	(236.77)	(167.31)	16.38	24.64	29.87	32.82	35.27	37.63	39.92	42.20	44.43	46.66	48.83	0.00	0.00	53.42	52.61	51.80	50.90	50.01	67.90
Income tax @ Corporate Tax	(81.94)	(57.90)	5.67	8.53	10.34	11.36	12.21	13.02	13.81	14.61	15.38	16.15	16.90	-	-	18.49	18.21	17.93	17.62	17.31	23.50
Income tax @ MAT	-	-	2.28	1.01	1.52	2.03	2.53	3.03	3.51	4.00	4.48	4.95	5.42	5.88	6.33	6.40	6.22	6.09	10.86	10.67	14.49
Effective tax	-	-	-	8.53	10.34	11.36	12.21	13.02	13.81	14.61	15.38	16.15	16.90	-	-	18.49	18.21	17.93	17.62	17.31	23.50
Tax break available on other profits																					
Tax break available on other profits	81.94	57.90																			

Considering Corporate tax till carry forward loss and no Tax during 80 IA period

Annexure-II Solar Energy Project and its IRR

Solar PV							
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Asumptions		
1	Power Generation					Project IRR	13.94%
						Equity IRR	16.38%
		Capacity	Installed Power Generation Capacity	MW	4		
			Capacity Utilization Factor	%	19.0%		
			Auxilliary Consumption	%	0.00%		
			Deration Factor (First 10 years)	%	1.0%		
			Deration Factor (Remaining period)	%	0.67%		
			Useful Life	Years	25		
2	Project Cost						
		Capital Cost	Power Plant Cost	Rs Lacs	2398.39	599.5986	
			IDC	Rs Lacs	0		
			Land & Site Development Cost	Rs Lacs			
3	Financial Assumptions						
					Tariff Period	Years	25
					Tariff	Rs./unit	6.00
					Escallation	%	2.00
				Debt: Equity	Debt	%	70%
					Equity	%	30%
					Total Debt Amount	Rs Lacs	1678.876106
					Total Equity Amout	Rs Lacs	719.5183312
				Debt Component	Loan Amount	Rs Lacs	1678.88
					Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	10.5		

			Interest Rate	%	12.00%
		<u>Equity Component</u>	Equity amount	Rs Lacs	719.52
			Return on Equity for first 10 years	% p.a	16.00%
			RoE Period	Year	10
			Return on Equity 11th year onwards	% p.a	16.00%
			Weighted average of ROE		16.00%
			Discount Rate		15.88%
4	Financial Assumptions				
		<u>Economic Assumptions</u>	Coal Price Escalation	% p.a	0%
			HSD Price Escalation	% p.a	0%
			Discount Rate	% p.a	15.86%
		<u>Fiscal Assumptions</u>	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	20.960%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>			
			Depreciation Rate for first 10 years	%	5.83% CERC
			Depreciation Rate 11th year onwards	%	1.54%
			Years for 7% rate		12
5	Working Capital				
		<u>For Fixed Charges</u>			
		O&M Charges		Months	1
		Maintenance Spare	(% of O&M expenses)		15%
		Receivables for Debtors		Months	2
		<u>For Variable Charges</u>			
		Interest On Working Capital		%	12.00%
7	Operation & Maintenance				
		power plant		Lakhs	22.2
		<u>Total O & M Expenses Escalation</u>		%	
		For 1st 5 years			7.00%
		onwards			5%

With AD Benefits																												
Description	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Project IRR computations																												
Cash outflow																												
fund drawal		-	-2398.39																									
Cash inflow																												
PBDIT-Tax			363.65	361.57	359.17	356.70	354.17	352.03	349.85	347.65	345.42	343.16	342.82	345.63	348.69	351.73	354.76	276.46	278.93	281.37	283.78	286.16	288.50	290.81	293.06	295.27	297.43	
Terminal value																											107.06	
Net cash flows		- 2398.4	363.7	361.6	359.2	356.7	354.2	352.0	349.9	347.7	345.4	343.2	342.8	345.6	348.7	351.7	354.8	276.5	278.9	281.4	283.8	286.2	288.5	290.8	293.1	295.3	404.5	
Project IRR		13.94%																										
Equity IRR computations																												

Equity Cash outflow																										
equity fund drawal		-719.5																								

Equity Cash inflow																											
PAT			51.29	68.05	85.75	103.39	120.95	138.91	156.84	174.74	192.61	210.44	226.42	230.44	233.49	236.48	239.44	161.07	163.47	165.84	282.14	284.44	286.70	288.92	291.08	293.19	295.24
Depreciation			113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	113.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
less repayment			(83.9)	(167.9)	(167.9)	(167.9)	(167.9)	(167.9)	(167.9)	(167.9)	(167.9)	(167.9)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net equity cashflows		(719.5)	81.3	14.1	31.8	49.5	67.0	85.0	102.9	120.8	138.7	156.5	340.4	344.4	347.5	350.4	353.4	275.0	277.4	279.8	282.1	284.4	286.7	288.9	291.1	293.2	295.2
Equity IRR		16.4%																									

Return on Equity																											
Particular	Unit	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Return on Equity	Rs Lakh		115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12	115.12

Tentative Repayment Schedule
Amount in Rs Lakhs

Sr. No.	Interest	12.00%	Principle repayment	Balance	Interest	Total Repayment	Interest Annual	Principal Annual
	Loan Rs. Lakhs	1678.88						
1	YEAR 1	I	0.000	1678.88	50.37	50.37		
2		II	0.000	1678.88	50.37	50.37		
3		III	41.972	1636.90	49.11	91.08		
4		IV	41.972	1594.93	47.85	89.82	197.69	83.94
5	YEAR 2	I	41.972	1552.96	46.59	88.56		
6		II	41.972	1510.99	45.33	87.30		
7		III	41.972	1469.02	44.07	86.04		
8		IV	41.972	1427.04	42.81	84.78	178.80	167.89
9	YEAR 3	I	41.972	1385.07	41.55	83.52		
10		II	41.972	1343.10	40.29	82.26		
11		III	41.972	1301.13	39.03	81.01		
12		IV	41.972	1259.16	37.77	79.75	158.65	167.89
13	YEAR 4	I	41.972	1217.19	36.52	78.49		
14		II	41.972	1175.21	35.26	77.23		
15		III	41.972	1133.24	34.00	75.97		
16		IV	41.972	1091.27	32.74	74.71	138.51	167.89

17	YEAR 5	I	41.972	1049.30	31.48	73.45		
18		II	41.972	1007.33	30.22	72.19		
19		III	41.972	965.35	28.96	70.93		
20		IV	41.972	923.38	27.70	69.67	118.36	167.89
21	YEAR 6	I	41.972	881.41	26.44	68.41		
22		II	41.972	839.44	25.18	67.16		
23		III	41.972	797.47	23.92	65.90		
24		IV	41.972	755.49	22.66	64.64	98.21	167.89
25	YEAR 7	I	41.972	713.52	21.41	63.38		
26		II	41.972	671.55	20.15	62.12		
27		III	41.972	629.58	18.89	60.86		
28		IV	41.972	587.61	17.63	59.60	78.07	167.89
29	YEAR 8	I	41.972	545.63	16.37	58.34		
30		II	41.972	503.66	15.11	57.08		
31		III	41.972	461.69	13.85	55.82		
32		IV	41.972	419.72	12.59	54.56	57.92	167.89
33	YEAR 9	I	41.972	377.75	11.33	53.30		
34		II	41.972	335.78	10.07	52.05		
35		III	41.972	293.80	8.81	50.79		
36		IV	41.972	251.83	7.55	49.53	37.77	167.89
37	YEAR 10	I	41.972	209.86	6.30	48.27		
38		II	41.972	167.89	5.04	47.01		
39		III	41.972	125.92	3.78	45.75		
40		IV	41.972	83.94	2.52	44.49	17.63	167.89
41	YEAR 11	I	41.972	41.97	1.26	43.23		
42		II	41.972	0.00	0.00	41.97	1.26	83.94
			1594.93	36053.86	1081.62	2676.55	1082.88	1678.88

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