RESPONSE TO REQUESTS FOR REVIEW

BVQI had performed the validation of the CDM Project 0282 "Bagasse based power project at Jamkhandi Sugars Limited Bagalkot Karnataka India. The request for registration was made on 31st March 2006 and was under review from 21st April to 20th May 2006. Subsequently, there have been four requests for review.

We thank the CDM executive board and the secretariat for giving us the opportunity to clarify about our considerations in validating the said project.

We find that the four requests were made against the following requirements derived from paragraph 37 of the CDM modalities and procedures, viz. i) The baseline and monitoring methodologies complying with the requirements pertaining to methodologies previously approved by the Executive Board. ii) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43 to 52 of the CDM modalities and procedures. iii) The project activity conforms to all other requirements for CDM project activities in decision 17/CP.7, the CDM modalities and procedures and relevant decisions by the COP/MOP.

We wish to clarify our stand for each of these requests as given below:

The project activity involves implementation and operation of new cogeneration unit of 6.3 MW capacity, next to the existing one of 6.0 MW capacity unit. The generated power through new cogeneration unit is exported to the Karnataka State electricity Board grid through 11KV/33KV Transformer installed in the unit premises. The project activity falls under small scale CDM project Type1- Renewable Energy Project and Category 1.D. – 'Grid connected renewable electricity generation' as mentioned in section B.1 of the PDD. 'Appendix B of the simplified M&P for small-scale CDM project activities-Version 06 (30th September 2005)' which was the valid version of the methodology during the validation process.

The selected baseline methodology is in line with the baseline methodologies provided for the relevant project category - Renewable Energy Project. Category 1.D. of the simplified modalities and procedures for small-scale CDM project activities.
This methodology applies to various project activities including Bagasse based power generation.
We therefore hereby confirm that in the opinion of the BVQI validation team, the methodology AMS 1.D is applicable to the said CDM project activity.
The validation of the said project had been conducted as per the laid down procedures of BVQI's accreditation manual. This manual had been used by us in obtaining the accreditation under sector scope-I to which the present project activity belong.
We give below our response individually to each of the requests for review.

Request for review no. 1:

Reasons and background for Request for Review	BVQI response
1. No verifiable information is available on to which extent CDM was seriously taken into account at early starting date (October 2003).	The starting date of the project activity is October 2002 . as given in the Section C.1.1 of the PDD. We presume that this has been wrongly typed as 2003 in the Reasons for Request.

The DOE has paid no attention to this.	The validation team would like to confirm that the details pertaining to the extent of CDM consideration of project activity had been verified during the site visit through documents maintained by the project participant . The validation team submits that the following documents maintained by the project participant had been verified by us for ascertaining the consideration of CDM by the project participant in the initial stages of the project activity. A. Internal memo dated 24/11/2000 from Asst. Manager (Finance & Accounts) to the chairman regarding the possible carbon benefits for the proposed project activity. (Exhibit no.1) B. Extract of the Board of Directors meeting held on 25th January 2001(Exhibit no.2) was made available to the validation team which confirms the consideration of the CDM revenue for the proposed project. However reference to these documents were not provided in the validation report. The copy of the both the documents have been attached for reference as Exhibit nos. 1 & 2.
2. Considering the starting date of the project activity (October 2003) it is unclear why the vintage of 2003-04 has not been used for establishment of the applicable baseline EF	The validation team had verified the Baseline Emission Factor Calculations for the year 2001-02 (Start of the project activity) and also for the subsequent years 2002-03 & 2003-04. Details are furnished in the attached calculations sheet (Exhibit no.3). The Baseline emission factor for the year 2001-02 being the least had been chosen for calculation of CERs.

Request for review no. 2:

Reasons and background for Request for Review	BVQI response
1. No verifiable information is available on to which extent CDM was seriously taken into account at early starting date (October 2003). The DOE has paid no attention to this.	The starting date of the project activity is October 2002 as given in the Section C.1.1 of the PDD. We presume that this has been wrongly typed as 2003 in the Reasons for Request. The validation team would like to confirm that the details pertaining to the extent of CDM consideration of project activity had been verified during the site visit through documents maintained by the project participant . The validation team submits that the following documents maintained by the project participant had been verified by us for ascertaining the consideration of CDM activity by project participant in the initial stages of the project activity.

	A. Internal memo dated 24/11/2000 from Asst. Manager (Finance & Accounts) to the chairman regarding the possible carbon benefits for the proposed project activity. (Exhibit no.1) B. Extract of the Board of Directors meeting held on 25th January 2001(Exhibit no.2) was made available to the validation team which confirms the consideration of the CDM revenue for the proposed project. However reference to these documents were not provided in the validation report. The copy of the both the documents have been attached for reference.
2. Considering the starting date of the project activity (October 2003) it is unclear why the vintage of 2003-04 has not been used for establishment of the applicable baseline EF. Annex 3,p 48 of the PDD calculates the Baseline Emission Factor as 1.089tCO2/MWh. However, this would apply to the Southern Grid and would not be appropriate to use for the Karnataka Grid(the one suggested to be used), whose factor was mentioned as 0.814tCO2/MWh. Annex 3 does not provide a calculation to derive the 0.814 tCO2/MWh representing the Karnataka Grid.	The validation team had verified the Baseline Emission Factor Calculations for the year 2001-02 (Start of the project activity) and also for the subsequent years. Details are furnished in the attached calculations sheet. The Baseline emission factor for the year 2001-02 being the least had been chosen for calculation of CERs. Annex 3 referred to in Page 48 of the PDD had been reviewed during the site visit . At the time of validation of this project the guidelines regarding use of Southern regional grid for calculating the Baseline emission factor was not available . Karnataka State Electricity grid is a part of Southern regional grid. Baseline emission factor for Karnataka State Electricity grid is lower than that of the Southern Regional grid and hence been chosen. The calculations pertaining to the Karnataka State grid Baseline emission factor at 0.814t CO2/MWh which was not enclosed with the Validation report has now been enclosed. (Exhibit no.3)

Request for review no. No.3

Reasons and background for Request for Review	BVQI response
1.The DOE does not provide any further comment whether it believes that the project developer provided evidence that the incentives from CDM were taken seriously into account and were considered in the decision by the project developer to proceed with CDM. Since the project wants to claim CERs starting in year 2003, such evidence would be necessary to be confirmed through the DOE.	The validation team would like to confirm that the details pertaining to the extent of CDM consideration of project activity had been verified during the site visit through documents maintained by the project participant . The validation team submits that the following documents pertaining to the CDM consideration of the project activity had been verified by us for ascertaining the start of the project activity. A. Internal memo dated 24/11/2000 from Asst. Manager (Finance & Accounts) to the chairman regarding the possible carbon benefits for the proposed project activity. (Exhibit no.1) B. Extract of the Board of Directors meeting held on 25th January 2001(Exhibit no.2) was made available to the validation team which confirms the consideration of the CDM revenue for the proposed project. However reference to these documents were not provided in the validation report. The copy of the both the documents have been attached for reference.
2. For calculating the Combined Margin emission factor, the latest available vintages should be used. It was not clear why the vintage 2004-05 was not used for establishing the applicable baseline emission factor. This vintage should be used for establishing the applicable baseline emission factor.This wintage should be used for CM emission factor calculation instead of the vintage 2001-02.	The validation team had verified the Baseline Emission Factor Calculations for the year 2001-02 (Start of the project activity) and also for the subsequent years 2002-03 & 2003-04. Details are furnished in the attached calculations sheet. The data for the Karnataka State grid pertaining to the year 2004-05 was not available at the time of validation of the project. Hence Baseline emission factor for the year 2001-02 being the least was chosen for the calculation of CERs. The data for the year 2004-05 for the Karnataka State grid is now available and hence the Baseline emission factor for the year 2004-05 has been determined and used for the calculation of CERs as requested by EB.(Exhibit No.4) The PDD has been revised by the Project Participant considering the vintage for the year 2004-05. The revised PDD Version 4.0 dated 28/06/2006 is attached.

Request for review no.4

Reasons and background for request for	BVQI Response

review	
1. No verifiable information is available on to which extent CDM was seriously taken into account at early starting date. (October 2003). The DOE has paid no attention to this. Considering the starting date of the Project activity(October 2003) it is Unclear why the vintage of 2003-04 has Not been used for establishment of the Applicable baseline EF.	The starting date of the project activity is October 2002 . as given in the Section C.1.1 of the PDD. We presume that this has been wrongly typed as 2003 in the Reasons for Request. The validation team would like to confirm that the details pertaining to the extent of CDM consideration of project activity had been verified during the site visit through documents maintained by the project participant . The validation team submits that the following documents pertaining to the CDM consideration of the project activity had been reviewed by us for ascertaining the start of the project activity. A. Internal memo dated 24/11/2000 from Asst. Manager (Finance & Accounts) to the chairman regarding the possible carbon benefits for the proposed project activity. (Exhibit no.1) B. Extract of the Board of Directors meeting held on 25th January 2001(Exhibit no.2) was made available to the validation team which confirms the consideration of the CDM revenue for the proposed project. However reference to these documents were not provided in the validation report. The copy of the both the documents have been attached for reference. The validation team has gone through the Baseline Emission Factor Calculations for the year 2001-02 (Start of the project activity) and also for the subsequent year 2003-04. Details are furnished in the attached calculations sheet. The data for the Karnataka State grid pertaining to the year 2004-05 was not available at the time of validation of the project. Hence Baseline emission factor for the year 2001-02 being the least was chosen for the calculation of CERs. The data for the year 2004-05 for the Karnataka State grid is now available and hence the Baseline emission factor for the year 2004-05 has been determined and used for the calculation of CERs. As requested by EB. The PDD has been revised by the Project Participant considering the vintage for the year 2004-05. The revised PDD is attached. (Exhibit

	no.4)

Date: 24/11/2000

INTERNAL MEMO

From : Rajneesh Verma, Asst. Manager (Finance & Accounts)

To : Shri S. B. Nyamagouda, Chairman

Respected Sir,

This is to bring to your kind notice on the discussions I had with the bank on securing finance for the 6.3 MW cogeneration plant.

I had a very detailed discussion with the Shri Ramesh, Assistant General Manager, State Bank of India, Commercial Branch, Hubli. I ensured him that if funds are made available to us at the earliest, we can start the plant by August 2002 and utilize the crushing season.

But, they have not agreed to sanction the loan due to non-exposure of the release of the same.

We have an information from some sources that IREDA, New Delhi has financing for co-generation. Further we have approached Shri K.B.K Reddy, Manager (PTS) for the same and they have agreed in principle for sanction of the same.

Further during the discussion with IREDA I informed that it has to come to his knowledge from other sugar mills in the region, that the co-generation power plant is a renewable energy project and hence it will qualify for carbon benefits. It has come to knowledge that the plant would generate about 15000 tons of carbon dioxide per annum which would generate revenues of about $2 per ton. These revenues could also be available in the future. However, as there is still uncertainty on the issue, a firm commitment on the revenues cannot be ascertained.

R. Verma
Asst. Manager (Finance & Accounts)

Reg. No. 18/14570/1993/ dt. 26-7-1993

Jamkhandi Sugars Ltd.,
ಜಮಖಂಡಿ ಶುಗರ್ಸ್ ನಿ. ಜಮಖಂಡಿ.

M.D. : 254160, OFF : 254162,254163 STD : 08353
TELE FAX : 08353 - 254081

EXTRACT FROM THE MINUTES OF THE MEETING OF BOARD OF DIRECTORS OF JAMKHANDI SUGARS LIMITED HELD ON 25th JANUARY 2001, 1.00 P.M. AT COMPANY'S WORKS, HIREPADASALGI

Managing Director, Shri. B.S. Gurumurthy brought to the notice of the Board of Directors the status of the financing for the 6.3 MW project.

The Managing Director informed the Board that the bank has sanctioned the loan and the Board decided to go ahead with issuing purchase order for the equipment of the project. The Board also indicated that the project should be commissioned at the earliest.

The Managing Director also informed that the co-generation project is eligible for carbon financing benefits as it is a renewable energy project and the revenues could be considered and necessary action to avail the benefits could be initiated at an appropriate time.

Certified True Copy

For Jamkhandi Sugars Ltd.

S.B. Nyamagouda
Chairman

CALCULATION OF BASELINE EMISSION FACTORS AND EMISSION REDUCTIONS OF JSL PROJECT						
Reference : AMS ID with Combined Margin Approach						
Year of offer	2001-02		2002-03		2003-04	
Generation Mix						
Sector	MU	%	MU	%	MU	%
Thermal Coal Based-State	8175.10	29.59	9391.10	33.26	10415.27	36.69
Thermal Coal Based-Central	6106.70	22.11	7571.21	26.81	6949.04	24.48
IPP-Coal Based	0.00	0.00	0.00	0.00	0.00	0.00
IPP-Gas (Naphtha) Based	943.57	3.42	1178.18	4.17	866.37	3.05
IPP-Diesel Based	720.13	2.61	418.75	1.48	277.13	0.98
VVNL-Diesel Based(State)	745.97	2.70	684.98	2.43	523.78	1.85
Hydro-State	9119.70	33.01	7062.54	25.01	7364.49	25.94
IPP-Mini Hydel	154.54	0.56	185.55	0.66	158.09	0.56
VVNL-Hydro (State)	215.75	0.78	250.23	0.89	191.35	0.67
Hydro - TB Dam	29.65	0.11	14.75	0.05	6.91	0.02
Nuclear Based-Central	1058.26	3.83	1010.73	3.58	926.72	3.26
IPP-Co-Generation	317.38	1.15	330.32	1.17	383.36	1.35
IPP-Biomass	25.34	0.09	45.33	0.16	52.98	0.19
IPP-Wind	12.09	0.04	94.74	0.34	269.63	0.95
Total	27624.18	100.00	28238.41	100.00	28385.12	100.00
Total generation excluding Low-cost power generation	16691.47		19244.22		19031.59	
Generation by Coal out of Total Generation excluding Low-cost power generation	14281.80	85.56	16962.31	88.14	17364.31	91.24
Generation by Gas (Naphtha) out of Total Generation excluding Low-cost power generation	943.57	5.65	1178.18	6.12	866.37	4.55
Generation by Diesel out of Total Generation eexcluding Low-cost power generation	1466.10	8.78	1103.73	5.74	800.91	4.21
Imports from others						
Imports from NTPC-NVVN, PTCIL & PGCIL	379.92	1.38	487.81	1.73	2337.28	8.23
Imports from WREB	57.32	0.21	16.16	0.06	0.00	0.00
Imports from SREB	2.52	0.01	12.56	0.04	0.00	0.00
Estimation od Baseline Emission Factor (tCO_2/MU)						
Simple Operating Margin						
Fuel 1 : Coal						
Avg. Efficiency of power generation with coal as a fuel, %		35.327		35.450		35.450
Avg. Calorific Value of Coal used (kcal/kg)		3877		4171		4171
Estimated Coal consumption (tons/yr)		8967585		9865550		10099359
Emission Factor for Coal-IPCC standard value (tonne CO2/TJ)		96.1		96.1		96.1
Oxidation Factor of Coal-IPCC standard value		0.98		0.98		0.98
COEF of Coal (tonneCO2/ton of coal)		1.526		1.642		1.642
Fuel 2 : Gas (Naphtha)						
Avg. Efficiency of power generation with gas as a fuel, %		45		45		45
Avg. Calorific Value of Gas used (kcal/kg)		10750		10750		10750
Estimated Gas consumption (tons/yr)		167739		209445		154015
Emission Factor for Gas- IPCC standard value(tonne CO2/TJ)		73.3		73.3		73.3
Oxidation Factor of Gas-IPCC standard value		0.995		0.995		0.995
COEF of Gas(tonneCO2/ton of gas)		3.277		3.277		3.277
Fuel 3 : Diesel						
Avg. Efficiency of power generation with diesel as a fuel, %		41.707		41.707		41.707
Avg. Calorific Value of Diesel used (kcal/kg)		9760		9760		9760
Estimated Diesel consumption (tons/yr)		309744		233185		169209

Emission Factor for Diesel-IPCC standard value (tonne CO2/TJ)		74.1		74.1		74.1
Oxidation Factor of Diesel-IPCC standard value		0.99		0.99		0.99
COEF of Diesel (tonneCO2/ton of diesel)		2.992		2.992		2.992
EF (OM Simple, excluding imports from other grids), tCO2/MU		908.23		913.47		924.24
EF (National Grid), tCO2/MU		872.00		865.00		845.00
EF (WREB), tCO2/MU		932.00		910.00		910.00
EF (SREB), tCO2/MU		752.00		769.00		757.00
EF (OM Simple), tCO2/MU		**907.49**		**912.18**		**915.58**
Considering 20% of Gross Generation						
Sector	**MU**	**%**	**MU**	**%**	**MU**	**%**
Thermal Coal Based-State	0.00	0.00			1504.33	29.37
Thermal Coal Based-Central	2851.25	54.18			1859.49	36.30
IPP-Coal Based	0	0.00			0.00	0.00
IPP-Gas (Naphtha) Based	943.57	17.93			866.37	16.91
IPP-Diesel Based	720.13	13.68			0.00	0.00
VVNL-Diesel Based(State)	0	0.00			0.00	0.00
Hydro-State	683.07	12.98			455.83	8.90
IPP-Mini Hydel	23.3	0.44			68.29	1.33
VVNL-Hydro (State)	0	0.00			0.00	0.00
Hydro - TB Dam	0	0.00			0.00	0.00
Nuclear Based-Central	0	0.00			0.00	0.00
IPP-Co-Generation	4.45	0.08			45.49	0.89
IPP-Biomass	25.34	0.48			52.98	1.03
IPP-Wind	11.2	0.21			269.63	5.26
Total	5262.31	100.00			5122.41	100.00
Generation by Coal out of Total Generation	2851.25	54.18			3363.82	65.67
Generation by Gas out of Total Generation	943.57	17.93			866.37	16.91
Generation by Diesel out of Total Generation	720.13	13.68			0.00	0.00
Imports from others						
Imports from NTPC-NVVN, PTCIL & PGCIL	379.92	7.22			1517.62	29.63
Imports from WREB	0				0.00	0.00
Imports from SREB	0				0.00	0.00
Built Margin						
Fuel 1 : Coal						
Avg. efficiency of power generation with coal as a fuel, %		35.450				35.450
Avg. calorific value of coal used in KPCL, kcal/kg		4171				4171
Estimated coal consumption, tons/yr		1658332				1956451
Emission factor for Coal (IPCC),tonne CO2/TJ		96.1				96.1
Oxidation factor of coal (IPCC standard value)		0.98				0.98
COEF of coal (tonneCO2/ton of coal)		1.642				1.642
Fuel 2 : Gas (Naptha)						
Avg. efficiency of power generation with gas as a fuel, %		45				45
Avg. calorific value of gas used, kcal/kg		10750				10750
Estimated gas consumption, tons/yr		167739				154015
Emission factor for Gas (as per standard IPCC value)		73.3				73.3
Oxidation factor of gas (IPCC standard value)		0.995				0.995
COEF of gas(tonneCO2/ton of gas)		3.277				3.277
Fuel 3 : Diesel						
Avg. efficiency of power generation with diesel as a fuel, %		41.707				41.707
Avg. calorific value of diesel used, kcal/kg		9760				9760
Estimated diesel consumption, tons/yr		152142				0

Emission factor for Diesel (as per standard IPCC value)		74.1				74.1
Oxidation factor of Diesel (IPCC standard value)		0.99				0.99
COEF of diesel tonneCO2/ton of diesel		2.992				2.992
EF (BM , excluding imports) (tCO2/MU)		**708.27**				**725.50**
EF (National Grid), tCO2/MU		845.00				845.00
EF (WREB), tCO2/MU		910.00				910.00
EF (SREB), tCO2/MU		757.00				757.00
EF (BM), tCO2/MU		**717.47**				**752.81**
Combined Margin Factor (Avg of OM & BM)		**814.61**				**832.28**
Baseline Emissions Factor (tCO2/MU)		**814.61**				**832.28**
Estimation of baseline emissions						
On-Site Project Emission Reductions						
No. of units replaced in the grid, millions				0.00		18.80
Emission factor considered, t CO_2/Mu				814.61		814.61
Carbon emission reductions in a year (ton of CO2)			139,876.99	0		15315
Emission Reductions			**13,987.70**			
Commitment period						**2002 - 2012**
No. of years of delivery of CERs						**10**
Total number of CERs for credit period						**139,877**

Power generation Mix of Karnataka for five years					
Energy Source	**1999-00**	**2000-01**	**2001-02**	**2002-03**	**2003-04**
Total Power Generation (mu)	26117.52	26520.57	28063.94	28754.00	30722.40
Total Thermal Power Generation	13116.244	14625.713	17131.231	19760.75	21368.87
Total Low Cost Power Generation	13001.276	11894.857	10932.709	8993.25	9353.527
Thermal % of Total grid generation	50.22	55.15	61.04	68.72	69.55
Low Cost % of Total grid generation	**49.78**	**44.85**	**38.96**	**31.28**	**30.45**
% of Low Cost generation out of Total grid generation - Average of the five most recent years – 39.06%					

BASELINE DATA FOR EMISSION REDUCTIONS CALCULATIONS OF 22 MW APPL PROJECT

Reference : ACM 002

SL.No.	Name of Power Plant	Fuel	Year of Commissioning	2001-2002 (MU)	2002-2003 (MU)	2003-2004 (MU)
A.	**State Sector-Hydro (Purchase from KPCL)**					
1	Sharavathy	Hydel	1964-67	4155.68	2827.11	3261.49
2	Chakra	Hydel	2002-2003	0	412.46	455.38
3	Linganamakki	Hydel	1979-80	175.77	111.23	126.93
4	Nagajhari	Hydel	1979-84	2393.18	1782.86	1700.84
5	Supa	Hydel	1985	387.9	250.31	234.5
6	Ghataprabha	Hydel	1992-93	72.47	57.79	63.01
7	Varahi	Hydel	1989-90	870.85	822.53	696.84
8	Mani	Hydel	1992-93	19.41	17.46	10.62
9	Bhadra	Hydel	1962-63	23.67	8.76	4.73
10	Kadra	Hydel	1997-99	282.55	228.69	214.73
11	Kalmala	Hydel		0.13	0.05	0.12
12	Sirwar	Hydel		0.22	0.78	0.17
13	Ganekal	Hydel		0.49	0.14	0.07
14	Mallapur	Hydel		28.34	0.76	8.46
15	Kodasali	Hydel	1999	274.82	213.63	212
16	Gerusoppa	Hydel	2000-01	408.25	309.63	355.38
17	Bhadra Right Bank	Hydel	1998	20.66	7.49	3.79
18	Kappadagudda	Hydel		5.31	10.86	14.98
19	Almatti Dam Power House	Hydel	2003-2004	0	0	0.45
	Total			**9119.7**	**7062.54**	**7364.49**
B.	**State Sector-Thermal (Purchase from KPCL)**					
1	RTPS-I to IV	Coal	1991-1994(Unit-3 &4)	5922.03	6079.33	5911.48
2	RTPS-V & VI	Coal	1985-99	2253.07	3036.22	2999.46
3	RTPS-VII	Coal	2003	0	275.55	1504.33
	Total			**8175.1**	**9391.1**	**10415.27**
C.	**Central Sector-Thermal**					
1	NTPC-SR	Coal	Before 1999	3255.45	3689.19	3006.56
2	NTPC-ER	Coal	2001-2002	846.52	1616.36	571.23
3	NTPC-NVVN	Coal	2003-2004	0	0	112.88
4	NTPC-Talcher 2&3	Coal	2003	0	0	835.85
5	NLC	Lignite	Before 1999	2004.73	2265.66	2082.99
6	NLC Expansion-I	Lignite	2003-2004	0	0	452.41
7	PTCIL		2001-2002	379.92	190.57	819.66
8	PGCIL-SREB		2002-2003	0	297.24	1404.74
	Total			**6486.62**	**8059.02**	**9286.32**
D.	**Central Sector-Nuclear**					
1	Madras Atomic Power Station (MAPS)		Before 1999	431.09	158.63	96.9
2	KAIGA Generating Station		Before 1999	627.17	852.1	829.82
	Total			**1058.26**	**1010.73**	**926.72**
E.	**From Neighbouring States**					
	SREB					
1	KSEB			0	0	0
2	APTRANSCO			2.52	12.56	0
3	TNEB			0	0	0
	Total			2.52	12.56	0
	WREB					

1	MSEB			0.59	4.19	0
2	Goa			0	1.18	0
3	CSEB			0	0.14	0
4	MPEB			0	7.12	0
5	GEB			0	3.53	0
6	WREB			56.73	0	0
	Total			57.32	16.16	0
	Hydro-T.B. Dam					
1	T.B.H.E		1957-64	29.65	14.75	6.91
	Total			**89.49**	**43.47**	**6.91**
F.	**VVNL**					
1	Power Prchase from VVNL	Hydro	Before 1999	215.749	250.234	191.347
2	Power Prchase from VVNL	Diesel	1992-93	745.971	684.976	523.783
	Total			**961.72**	**935.21**	**715.13**
G.	**IPPs-Major**					
1	Rayalseema Alkalies	Diesel	2000-2001	189.08	61.8	41.63
2	TATA Electric Company	Diesel	2000-2001	531.05	356.95	235.5
3	Taneer Bhavi Power Company	Gas (Naptha)	2001-2002	943.57	1178.18	866.37
4	JTPCL	Corex Gas		984	902.97	780.17
	Total			**1663.7**	**1596.93**	**1143.5**
H.	**IPPs-Co-Generation**					
1	Ugar Sugar Ltd.		Before 1999	69.9	51.66	55.48
2	Shamanur Sugars Ltd.		Before 1999	100.02	98.31	111.9
3	Shree Renuka Sugars Ltd.		Before 1999	34.61	26.33	45.96
4	Bannari Amman Sugars Ltd.		Before 1999	57.71	73.82	76.27
5	ICL Sugars Ltd.		Before 1999	13.54	17.17	14.19
6	Prabhulingeshwara Sugars		Before 1999	33.66	38.34	34.07
7	Dandeli Ferro Alloys Limited		2001-2002	4.45	3.57	0
8	Jamkhandi Sugars Limited		2001-2002	0.62	7.14	13.47
9	GEM Sugars		2002-2003	0	8.29	27.59
10	Godavari Sugars Ltd.		2002-2003	0	17.47	96.09
11	Ryatsara Sahakari S.K.N		2001-2002	2.87	5.69	2.76
12	Devengare Sugar Co. Ltd.		2003-2004	0	0	1.67
	Total			**317.38**	**330.32**	**383.36**
I.	**IPPs-Mini Hydel**					
1	ITPL		Before 1999	2.37	1.38	0.66
2	EDCL		Before 1999	24.48	22.87	20.76
3	Murudeshwar Power Corporation Ltd.		Before 1999	48.54	37.91	37.17
4	Bhoruka Power Corporation Ltd.		Before 1999	27	27.3	23.59
5	Bhoruka Power (Shahapur)		Before 1999	0	0	2.86
6	S.M.I.O.R.E		Before 1999	28.46	11.98	4.45
7	Thungabhadra Steel Products		Before 1999	0.39	0.37	0.31
8	Amogha Power Projects		2001-2002	1.96	2.8	1.81
9	Atria Power Corporation Ltd.		2001-2002	21.34	79.29	54.46
10	Vijaylakshmi Hydro Power Ltd.		2002-2003	23.3	1.33	1.83
11	Moodatyagil Power Pvt. Ltd.		2002-2003		0.32	0.52
12	Subhash Kabini power Corporation Ltd.		2003-2004			28.12
13	Maruthi Power (Kabini)		2003-2004			1.65
14	Maruthi Power (Hemabhathi)		2003-2004			0.5
15	Kalson Power Tech Ltd.		2003-2004			2.89
16	Graphite India Ltd.		2003-2004			1.31
17	Intrernational Power Corpn. Ltd.		2003-2004			3.32
	Total			**177.84**	**185.55**	**158.09**
J.	**IPPs-Bio Mass**					

1	Mallavali Power Plant		2001-2002	13.11	21.78	26.47
2	South India Paper Mills		2001-2002	12.23	23.55	13.11
3	Bhagarampur Solvets		2003-2004			3.22
4	R.K.Powergen		2003-2004			9.75
5	Samson Distillisers		2003-2004			0.43
	Total			**25.34**	**45.33**	**52.98**
K.	**IPPs-Wind**					
1	Nuziveddu Wind Energy (1.9MW)		2003-2004			16.94
2	Nuziveddu Wind Energy (10.5MW)		2003-2004			26.34
3	Nuziveddu Wind Energy (6.75MW)		2001-2002	8.16	8.59	2.76
4	Cepco Wind Farm		2001-2002	7.35	20.27	23.57
5	Topaz Wind Farm		2001-2002	0.93	1.86	2
6	Enercon Wind Farm		2001-2002	2.92	23.21	26.95
7	Prabhat Agri biotech Ltd.		2002-2003		1.08	1.05
8	Panarna Business Centre		2003-2004		0	1.24
9	Panarna Credit & Capital		2003-2004			0.66
10	Texmo Precision and Castings		2003-2004		0	2.87
11	Siddaganga Oil Extractions		2003-2004		0	2.86
12	Fiza Developers and Inner Trade		2002-2003		0.01	2.83
13	Suttatti Enterprise		2003-2004		0	2.48
14	Raja Magnetics Ltd.		2003-2004		0	1.11
15	VXL Systems-II		2003-2004			0.77
16	VXL Systems-I		2003-2004			0.77
17	Kamal Trading Company		2003-2004			0.72
18	Jindal Alluminium-1.9MW		2003-2004			3.23
19	Mayura Steels		2003-2004			0.75
20	Shilpa Medicare		2003-2004			0.64
21	Patel Shanti Steels		2003-2004			0.71
22	Balasaheb IJ Limited		2003-2004			0.69
23	Friends Associate Power Projects		2003-2004			0.74
24	Sharp Pumps (P) Ltd.		2003-2004			0.73
25	Rajnikanth Foundation		2003-2004			0.71
26	RSM Autokast Ltd.		2003-2004			1.49
27	Indan Energy Ltd.		2003-2004			1.48
28	MSPL Ltd. Phase-1		2003-2004			1.99
29	Savitha Chemicals		2003-2004			4.82
30	Elveety Industries		2003-2004			0.57
31	Jindal Alluminium-6.6MW		2002-2003		2.57	14.59
32	Ghodawat Pan Masala (Enercon)		2003-2004			11.83
33	Ghodawat Pan Masala-NH		2003-2004			9.46
34	Sanjay D. Ghodawat		2003-2004			1.55
35	Shriram Transport Finance		2003-2004			8.73
36	Shriram City Union Finance		2003-2004			3.89
37	Shriram Investments		2003-2004			8.03
38	Texmo Industries EP2		2003-2004			4.51
39	Enercon-Karnataka		2003-2004			46.08
40	Lovely Fragrances		2003-2004			1.83
41	J.N.Investments		2003-2004			0.81
42	Reliance Energy Ltd.		2001-2002	0.89	19.08	20.08
43	Topaz Investments-1.2MW		2003-2004			2.14
44	Cepco Industries-0.6MW		2003-2004		0	1.2
45	Shilpa Medicare-0.46MW		2003-2004			1.5
46	Mohite & Mohita		2003-2004			4.06
47	NEG Mican		2003-2004			6.99

48	Pallavi Green Power		2003-2004			0.56
49	Supreme Power Company		2003-2004			1.46
50	Dee Dee Enterprises		2003-2004			1.4
51	Royal Energy Company		2003-2004			1.08
52	Rangad minerals and Mining Ltd.		2003-2004			1.15
53	MSPL Ltd. Phase-II		2003-2004			3.61
54	Mansukmal Investments		2003-2004			0.29
55	Reliance-BSES		2003-2004			3.06
56	Encon Services Ltd.		2003-2004			4.34
57	Mahe Ltd.		2003-2004			12.17
58	Prime Lables Ltd.		2003-2004			0.36
59	Savita Chemicals (Encon Group)		2003-2004			2.37
60	Sanjay D. Ghodawat (I & II)		2003-2004			0.01
61	BS Charnabasappa & Sons		2003-2004			0.01
62	Associated Autotex Ancilliaries Ltd.		2003-2004			0
63	Good Luck Syndicate		2003-2004			0.01
64	Ghodawat Pan Masala (VVS)		2003-2004			0.02
65	Star Flexi Pack Industries		2003-2004			0.01
66	Shreya Laxmi Properties		2003-2004			0
67	Shraddha Constructions		2003-2004			0
68	VXL Systems 0.6MW (VVS)		2003-2004			0
69	Cepco Industries-1.2MW(VVS)		2003-2004			0
70	Dee Dee Enterprises (Enercon)		2003-2004			2.01
71	Miscellaneous IPPs				26.66	
	Total			**12.09**	**94.74**	**269.63**
	Total Power Generation			**28087.24**	**28754.94**	**30722.4**
	20% of Total Power Generation			**5617.448**	**5750.988**	**6144.48**

Calculation of Built Margin					
Sr.No.	Power plant name / location	Unit No.	Year of commissioning	Fuel Type	Generation of the Unit in 2001-2002 (MU)
1	NTPC-ER		2001-2002	Coal	846.52
2	PTCIL		2001-2002	National generation Mix	379.92
3	Taneer Bhavi Power Company		2001-2002	Naphtha	943.57
4	IPPs-Co-Generation		2001-2002	Cogeneration	4.45
5	IPPs-Mini Hydel		2001-2002	Mini Hydel	23.3
6	IPPs-Bio Mass		2001-2002	Biomass	25.34
7	IPPs-Wind		2001-2002	Wind	11.2
8	Gerusoppa		2000-2001	Hydel	408.25
9	Rayalseema Alkalies		2000-2001	Diesel	189.08
10	TATA Electric Company		2000-2001	Diesel	531.05
11	Kodasali		1999-2000	Hydel	274.82
12	NLC		1999-2000	Lignite	2004.73

Total	**5642.23**
20% of Gross Generation	**5617.448**
Coal(State)	0.00
Coal(Central)	2851.25
Diesel	720.13
Naptha	943.57
Hydel(State)	683.07
IPP-Mini-Hydel	23.3
IPP-Wind	11.2
IPP-Biomass	25.34
IPP-Co-generation	4.45
Imports from National Generation Mix	379.92

	2000-2001			
Built Margin Factor	**MU**			**%**
Thermal Coal based(State)	6848.83			85.69
Thermal Coal based(Central)	1042.04			13.04
Gas Based (State)	0			0.00
Hydro (State)	101.75			1.27
Biomass	0.00			0.00
Nuclear (Central)	0			0.00
Total	**7992.61**			**100.00**
Emission factor for Coal (IPCC),tonne CO2/TJ	96.10			
Emission factor for Gas (IPCC),tonne CO2/TJ	56.10			
Avg. efficiency of power generation with coal as a fuel, %				32.00
Avg. efficiency of power generation with gas as a fuel, %				45.00
Net emission factor for thermal (Coal)				94.88
Net emission factor for thermal (Gas)				0.00
Net Build margin factor (Kg CO2/kWh)				**1.07**

Calculation of Built Margin					
Sr.No.	Power plant name / location	Unit No.	Year of commissioning	Fuel Type	Generation of the Unit in 2003-2004 (MU)
1	RTPS-VII	7	2003-2004	Coal	1504.33
2	NTPC-NVVN		2003-2004	National Generation Mix	112.88
3	IPP-Wind		2003-2004	Wind	178.56
4	IPP-Biomass		2003-2004	Biomass	13.4
5	IPP-Mini Hydel		2003-2004	Mini Hydel	9.67
6	IPP-Co-generation		2003-2004	Co-generation	1.67
7	NLC Expansion-I		2003-2004	Lignite	452.41
8	Almatti Dam Power House		2003-2004	Hydel	0.45
9	NTPC-Talcher 2&3	3	2003	Coal	835.85
10	IPP-Wind		2002-2003	Wind	18.47
11	IPP-Mini Hydel		2002-2003	Mini Hydel	2.35
12	IPP-Co-generation		2002-2003	Co-generation	27.59
13	Chakra		2002-2003	Hydel	455.38
14	PGCIL-SREB		2002-2003	National Generation Mix	1404.74
15	IPP-Wind		2001-2002	Wind	72.6
16	IPP-Biomass		2001-2002	Biomass	39.58
17	IPP-Mini Hydel		2001-2002	Mini Hydel	56.27
18	IPP-Co-generation		2001-2002	Co-generation	16.23
19	NTPC-ER		2001-2002	Coal	571.23
20	Taneer Bhavi Power Company		2001-2002	Naphtha	866.37
Total					**6640.03**
20% of Gross Generation					**6144.48**
				Coal(State)	1504.33
				Coal(Central)	1859.49
				Diesel	0
				Naptha	866.37
				Hydel(State)	455.83
				IPP-Mini-Hydel	68.29
				IPP-Wind	269.63
				IPP-Biomass	52.98
				IPP-Co-generation	45.49
				Imports from National Generation Mix	1517.62

5122.41

CALCULATION OF BASELINE EMISSION FACTORS AND EMISSION REDUCTIONS OF JSL PROJECT						
Reference : AMS ID with Combined Margin Approach						
Year of offer	2002-03		2003-04		2004-05	
Generation Mix						
Sector	GWh	%	GWh	%	GWh	
Thermal Coal Based-State	9391.10	33.26	10415.27	36.69	9799.11	32.53
Thermal Coal Based-Central	7571.21	26.81	6949.04	24.48	8081.35	26.83
IPP-Coal Based	0.00	0.00	0.00	0.00	0.00	0.00
IPP-Gas (Naphtha) Based	1178.18	4.17	866.37	3.05	630.27	2.09
IPP-Diesel Based	418.75	1.48	277.13	0.98	277.35	0.92
VVNL-Diesel Based(State)	684.98	2.43	523.78	1.85	573.53	1.90
Hydro-State	7062.54	25.01	7364.49	25.94	8152.98	27.07
IPP-Mini Hydel	185.55	0.66	158.09	0.56	315.74	1.05
VVNL-Hydro (State)	250.23	0.89	191.35	0.67	209.52	0.70
Hydro - TB Dam	14.75	0.05	6.91	0.02	28.01	0.09
Nuclear Based-Central	1010.73	3.58	926.72	3.26	871.14	2.89
IPP-Co-Generation	330.32	1.17	383.36	1.35	515.00	1.71
IPP-Biomass	45.33	0.16	52.98	0.19	176.39	0.59
IPP-Wind	94.74	0.34	269.63	0.95	489.53	1.63
Total	28238.41	100.00	28385.12	100.00	30119.92	100.00
Total generation excluding Low-cost power generation	19244.22		19031.59		19361.61	
Generation by Coal out of Total Generation excluding Low-cost power generation	16962.31	88.14	17364.31	91.24	17880.46	92.35
Generation by Gas (Naphtha) out of Total Generation excluding Low-cost power generation	1178.18	6.12	866.37	4.55	630.27	3.26
Generation by Diesel out of Total Generation eexcluding Low-cost power generation	1103.73	5.74	800.91	4.21	850.88	4.39
Imports from others						
Imports from NTPC-NVVN, PTCIL & PGCIL	487.81	1.73	2337.28	8.23	2493.91	8.28
Imports from WREB	16.16	0.06	0.00	0.00	0.00	0.00
Imports from SREB	12.56	0.04	0.00	0.00	0.00	0.00
Estimation od Baseline Emission Factor (tCO2/GWh)						

Simple Operating Margin						
Fuel 1 : Coal						
Avg. Efficiency of power generation with coal as a fuel, %		35.450		35.450		35.450
Avg. Calorific Value of Coal used (kcal/kg)		4171		4171		4171
Estimated Coal consumption (tons/yr)		9865550		10099359		10399560
Emission Factor for Coal-IPCC standard value (tonne CO2/TJ)		96.1		96.1		96.1
Oxidation Factor of Coal-IPCC standard value		0.98		0.98		0.98
COEF of Coal (tonneCO2/ton of coal)		1.642		1.642		1.642
Fuel 2 : Gas (Naphtha)						
Avg. Efficiency of power generation with gas as a fuel, %		45		45		45
Avg. Calorific Value of Gas used (kcal/kg)		10750		10750		10750
Estimated Gas consumption (tons/yr)		209445		154015		112043
Emission Factor for Gas- IPCC standard value(tonne CO2/TJ)		73.3		73.3		73.3
Oxidation Factor of Gas-IPCC standard value		0.995		0.995		0.995
COEF of Gas(tonneCO2/ton of gas)		3.277		3.277		3.277
Fuel 3 : Diesel						
Avg. Efficiency of power generation with diesel as a fuel, %		41.707		41.707		41.707
Avg. Calorific Value of Diesel used (kcal/kg)		9760		9760		9760
Estimated Diesel consumption (tons/yr)		233185		169209		179766
Emission Factor for Diesel-IPCC standard value (tonne CO2/TJ)		74.1		74.1		74.1
Oxidation Factor of Diesel-IPCC standard value		0.99		0.99		0.99
COEF of Diesel (tonneCO2/ton of diesel)		2.992		2.992		2.992
EF (OM Simple, excluding imports from other grids), tCO2/GWh		913.47		924.24		928.47
EF (National Grid), tCO2/GWh		865.00		845.00		845.00
EF (WREB), tCO2/GWh		910.00		910.00		910.00
EF (SREB), tCO2/GWh		769.00		757.00		757.00
EF (OM Simple), tCO2/GWh		**912.18**		**915.58**		**918.95**
Considering 20% of Gross Generation						
Sector						
Thermal Coal Based-State					1365.99	26.64
Thermal Coal Based-Central					2818.04	54.96
IPP-Coal Based					0.00	0.00
IPP-Gas (Naphtha) Based					0.00	0.00
IPP-Diesel Based					0.00	0.00
VVNL-Diesel Based(State)					0.00	0.00
Hydro-State					136.24	2.66
IPP-Mini Hydel					54.43	1.06
VVNL-Hydro (State)					0.00	0.00
Hydro - TB Dam					0.00	0.00
Nuclear Based-Central					0.00	0.00
IPP-Co-Generation					240.75	4.70
IPP-Biomass					147.66	2.88
IPP-Wind					364.25	7.10
Total					5127.36	100.00
Generation by Coal out of Total Generation					4184.03	81.60
Generation by Gas out of Total Generation					0.00	0.00
Generation by Diesel out of Total Generation					0.00	0.00
Imports from others						81.60
Imports from NTPC-NVVN, PTCIL & PGCIL					2217.42	43.25
Imports from WREB					0.00	0.00
Imports from SREB					0.00	0.00

Built Margin						
Fuel 1 : Coal						
Avg. efficiency of power generation with coal as a fuel, %						35.450
Avg. calorific value of coal used in KPCL, kcal/kg						4171
Estimated coal consumption, tons/yr						2433498
Emission factor for Coal (IPCC),tonne CO2/TJ						96.1
Oxidation factor of coal (IPCC standard value)						0.98
COEF of coal (tonneCO2/ton of coal)						1.642
Fuel 2 : Gas (Naptha)						
Avg. efficiency of power generation with gas as a fuel, %						45
Avg. calorific value of gas used, kcal/kg						10750
Estimated gas consumption, tons/yr						0
Emission factor for Gas (as per standard IPCC value)						73.3
Oxidation factor of gas (IPCC standard value)						0.995
COEF of gas(tonneCO2/ton of gas)						3.277
Fuel 3 : Diesel						
Avg. efficiency of power generation with diesel as a fuel, %						41.707
Avg. calorific value of diesel used, kcal/kg						9760
Estimated diesel consumption, tons/yr						0
Emission factor for Diesel (as per standard IPCC value)						74.1
Oxidation factor of Diesel (IPCC standard value)						0.99
COEF of diesel tonneCO2/ton of diesel						2.992
EF (BM , excluding imports) (tCO2/GWh)						**779.11**
EF (National Grid), tCO2/GWh						845.00
EF (WREB), tCO2/GWh						910.00
EF (SREB), tCO2/GWh						757.00
EF (BM), tCO2/GWh						**799.00**
Combined Margin Factor (Avg of OM & BM)						**857.29**
Baseline Emissions Factor (tCO2/GWh)						**857.29**