

BRIEF

Name of Project: "Construction of additional cooling tower cells at AES Lal Pir (Pvt.) Ltd." Version 01. Muzaffar Garh

Objectives:

- The main objective of the project activity is to improve the cooling performance of Lal Pir power station by constructing additional Cooling Tower Cells in order to reduce the fuel consumption for Co₂ abatement.
- To help in achieving the objectives of combating climate change under UNFCCC by reducing significant amount of greenhouse gas (carbon dioxide) emissions and contributes to the regional and national sustainable development.

Date of Submission: 16th March, 2008

Submitted by: AES Lal Pir (Pvt.) Ltd. Muzaffar Garh.

Project Sponsors: AES Lal Pir (Pvt.) Ltd, Muzaffar Garh.

Project Development Consultants: AES Carbon Exchange Limited, Netherlands

Detail of Total Project Cost:

Description	Amount in (US\$) Million
Civil	
1. Geotechnical Survey	15,000
2. Design and Tender Document	2,500
3. Boring Pyzometer	1,333
4. Control Panel Modification	6,167
5. Site Excavation Disposal	3,583
6. Civil Construction Cost, Consultancy	11,833
7. Drilling for Connections 12.5'x 3.5'	6,000
8. Connection Stopper Construction	5,433
9. Relocation of Surface Drainage	13,333
10. Connecting Channels	14,085
11. Chemical for Civil Work	29,682
12. Power Tools Civil	4,750
13. Submersible Pump	7,500
14. Manpower Cooling Tower Repair	1,139
15. Manpower Coating for New Channel	754
16. Manpower Cooling Tower Repair	11,324
17. Batching Plant	35,000
Mechanical	
1. Nozzle+ Distribution Design	18. 19,100
2. PVC Film Fills	19. 74,330
3. Labor for Fills Binding	20. 5,833
4. Drift Eliminators	21. 9,217

5.Gearbox	22.37,394
6.Fan Assembly	23.6,333
7.36" Piping, Valve & Expansion Below	24.29,805
8.Mechanical modification Labor	25.1,262
9.Pipe Blasting & Painting	26.1,417
10.Riser Connection Labor	27.2,861
11.Fabrication & Welding Manpower	28.3,167
12.Coat Wrapping of Underground Piping-1	29.1,500
13.Coat Wrapping of Underground Piping-2	30.1,500
14.Fire Ring HDG Pipe 12"	31.17,683
15.Railing & Platforms + Labor	32.5,000
16.PVC Pipe 6" 40 Sch Material	33.7,699
17.PVC Pipe 6" 40 Sch Installation	34.6,500
18.Stair Modification + Labor	35.95,000
19.Elbows 90 degree + Pipe 36" for Risers	36.7,373
20.Fitting for 12" Fire Header	37.4,621
21.Fire Ring Labor + Consumable	38.4,592
Electrical	
1.Electrical Motor	39.35,302
2.Electrical Cables	40.37,748
3.Cables & Panel Relocation Manpower	41.5,000
4.Cable Trays	42.5,108
5.Power Cable	43.16,219
6.Electrical Manpower	44.979
7.Electrical Manpower	45.318
8.Electrical Manpower	46.316
Human Resources	
1.4 Persons	47.48,000
2.20 Labor	48.24,000
3.Planning & Reporting	49.34,646
Misc.	
Misc. Items	83,333
For One cooling Tower	0.80
Total (for two-complete project)	1.6

Estimated Emission Reduction:

<u>Source</u>	<u>Tons of CO₂eq/ yr</u>
AES Lal Pir (Pvt.) Ltd.	9,542.7
Total annual reduction:	9,542.7

Operational Lifetime:

10 years.

Starting/Commissioning date:

August 2008

Crediting/Validity Period:

- Kyoto first commitment period: 2008-12
- Estimated validity period (Including Post Kyoto period): 2008-17

Economic Viability of the Project:

- Internal Rate of Return (IRR):
- Without CDM benefits: **3.7%**
- With CDM benefits: **4.7%**

Benefits from the Project:

Activity	Revenue (US\$) Million
Sale of Carbon Credits (@ US\$ 10/tonnes of CO _{2eq}):	0.09
Total estimated annual revenue:	0.09

Other Qualitative Benefits:

- The project will generate new local contract base jobs (Approximately 20-30 numbers) and the staff at the plant will also receive some training on this system.
- The implementation of this new clean project will set an example for other companies in the sector, and will help to increase awareness and responsibility towards the environment.
- This will allow the diversification of the energy national matrix.
- A portion of revenue generated from sales of CERs will be transferred in social funds which will be spent for the project in schools, hospitals, infrastructure in the surrounding area.
- A part of revenue generated from the sales of CERs will use to improve the income of major job providers of the region. There will be additional jobs created in the local area during installation of the project.
- This project activity will reduce the air pollution and emissions of Sox, NOx, CO, and other gases will also be minimized.
- Reduction in fossil fuel combustion eventually reduces the emissions. All the emission parameters will be monitored through Continuous Emission Monitoring System (CEMS) continuously. So, project activity has positive impact on the environment.
- The project activity improves the supply of electricity with clean, energy efficiency while contributing to the regional/local economic development.