

**carbon
services**

firstclimate



**First Climate AG & Carbon
Services:**

CDM Projects in Pakistan

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First Climate Team

- Over 200 full time CDM and Carbon Finance Experts
- Operations include
 - Headquarters in Zurich, Switzerland
 - Subsidiaries and Partner offices in:
 - China
 - India
 - Brazil
 - Romania
 - Pakistan
 - Germany
 - USA
 - Chile
 - Russia

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Energy Efficiency

- **Waste heat recovery**
- **Boiler improvements**
- **Steam optimization in process**
- **Gas turbine cogeneration projects, with heat recovery**

Textile Sector

- **Energy efficiency improvements**
- **Alternative fuels**
- **Fossil fuel heating through waste heat recovery or solar power**

Steel Sector

- **Energy efficiency improvements in thermal and electrical energy systems**
- **Waste heat recovery from sponge iron kilns, blast furnaces, and coke oven**
- **Alternative fuels for emission reduction**

Power Sector

- **Renewable energy such as Wind, Hydro, Solar, Biomass Power**
- **Open cycle to Combined cycle power plant conversions**
- **Rehabilitation of boilers to increase efficiency of steam generation**
- **Fossil fuel switch**

Cement Sector

- **Energy Efficiency initiatives to reduce fuel consumption**
- **Waste heat recovery based power generation**
- **Alternative raw materials (fly ash, slag, etc) Increasing the blend in cement production**
- **Use of non-carbonated calcium sources in the raw mix for cement processing**
- **Use of alternative raw materials that contain carbonates in clinker manufacturing in cement kilns**
- **Alternative raw materials that do not contain carbonates for clinker manufacturing in cement kilns**
- **Emission reduction through partial substitution of fossil fuels with alternative fuels in cement manufacture**

Sugar Sector

- **High pressure boiler based Cogeneration**
- **Biomethanation and Biogas power generation**
- **Replacement of boilers with high pressure**
- **Boiler improvements**
- **Incineration of aerated effluent waste in boilers**
- **Co composting of press mud with secondary effluent**
- **Fuel replacement with biomass**
- **Avoidance of methane production in wastewater treatment through replacement of anaerobic lagoons by aerobic systems**

Oil and Petrochemicals

- **Energy efficiency**
- **Recovery and utilization of gas from oil wells, which was being flared (associated gas)**
- **Leak reduction from natural gas pipelines**

Paper and Pulp

- **Methane avoidance from waste water treatment**
- **Biomass utilization and feedstock**
- **Energy Efficiency**
- **Cogeneration**

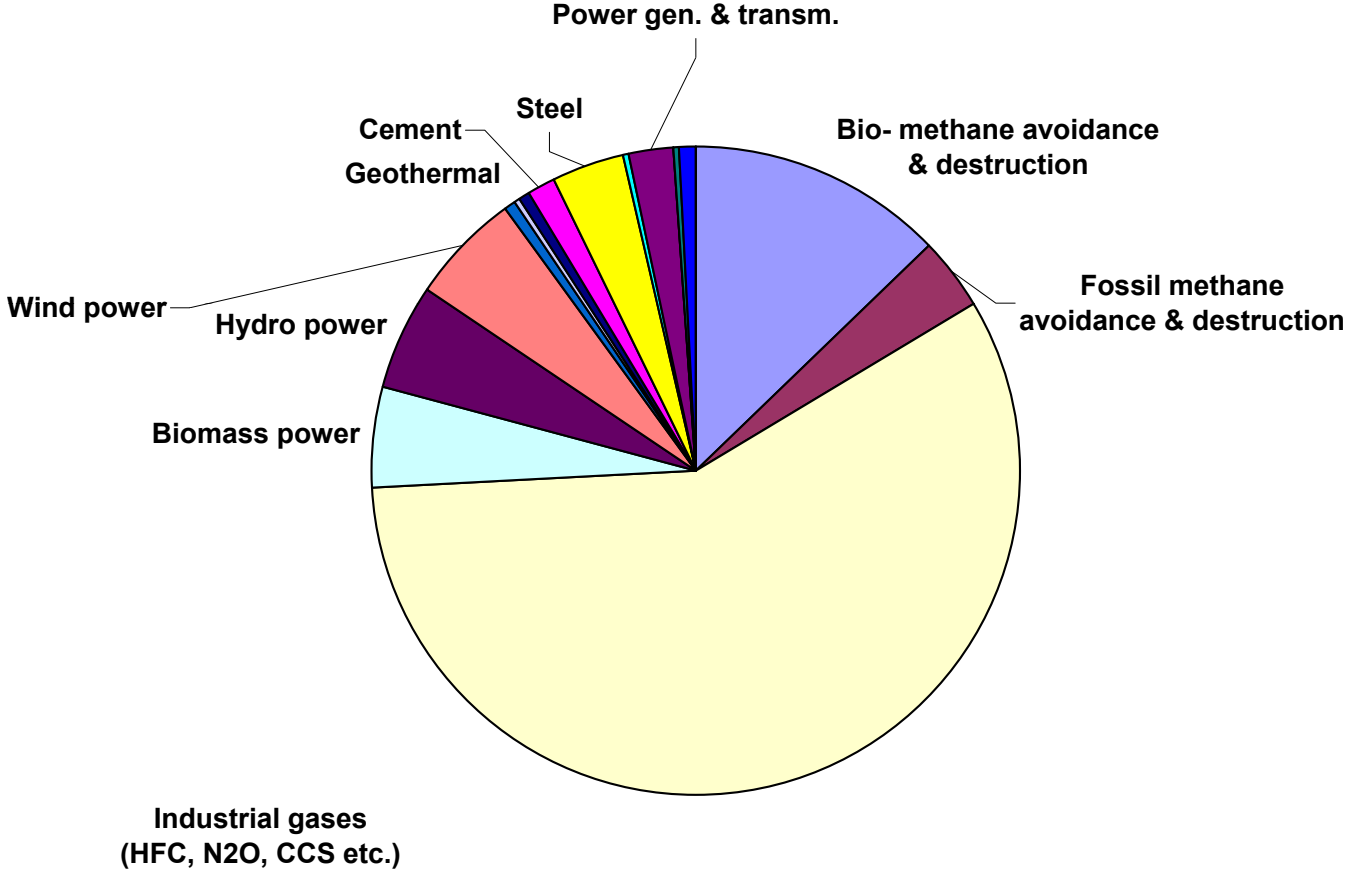
Transport

- **Energy efficiency improvements**
- **Fossil fuel switch**
- **Waste cooking oil based biodiesel for transportation**
- **Bus Rapid Transport System**

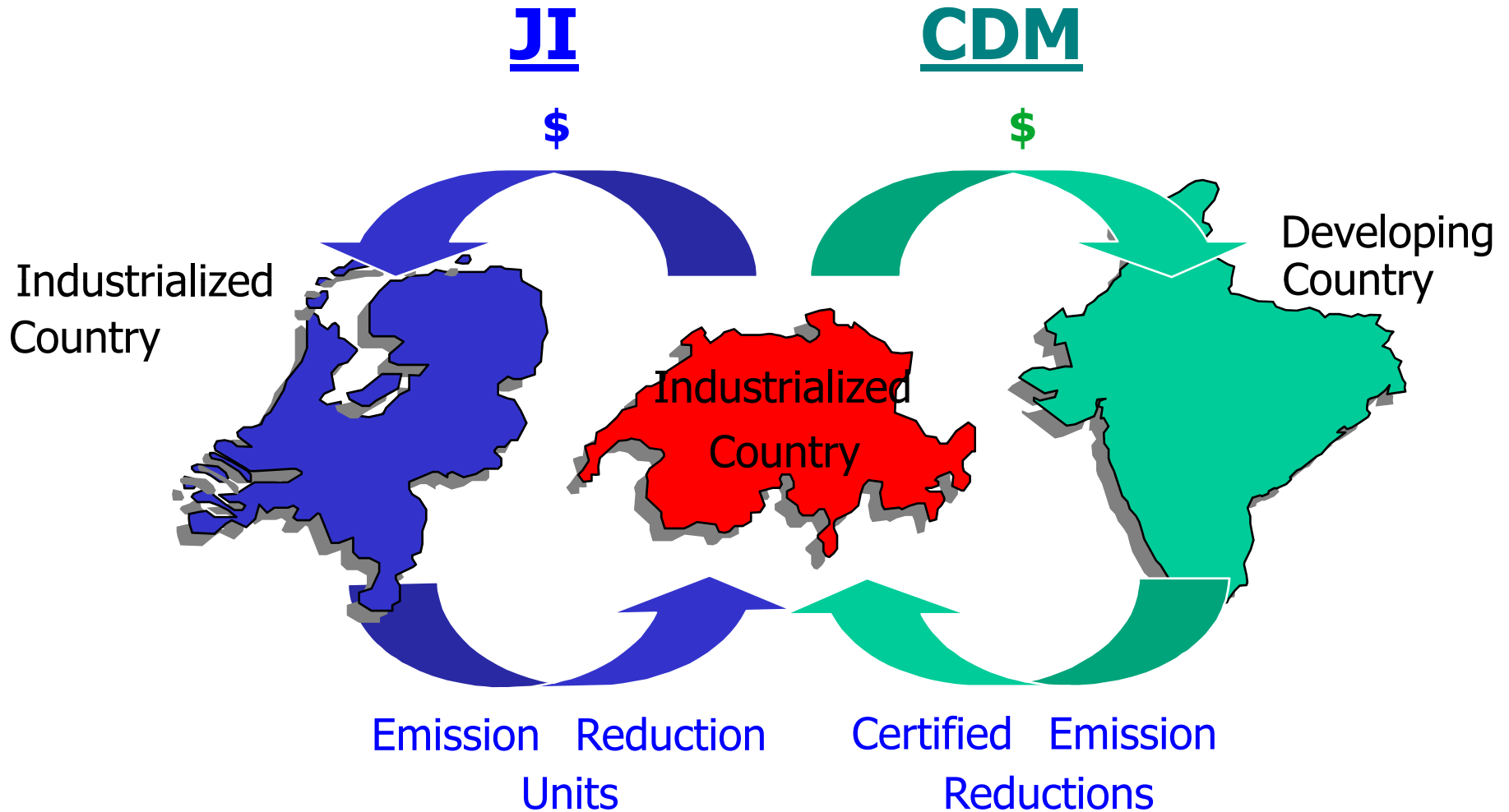
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Expected Emission Reductions from registered Projects (per January 2008)



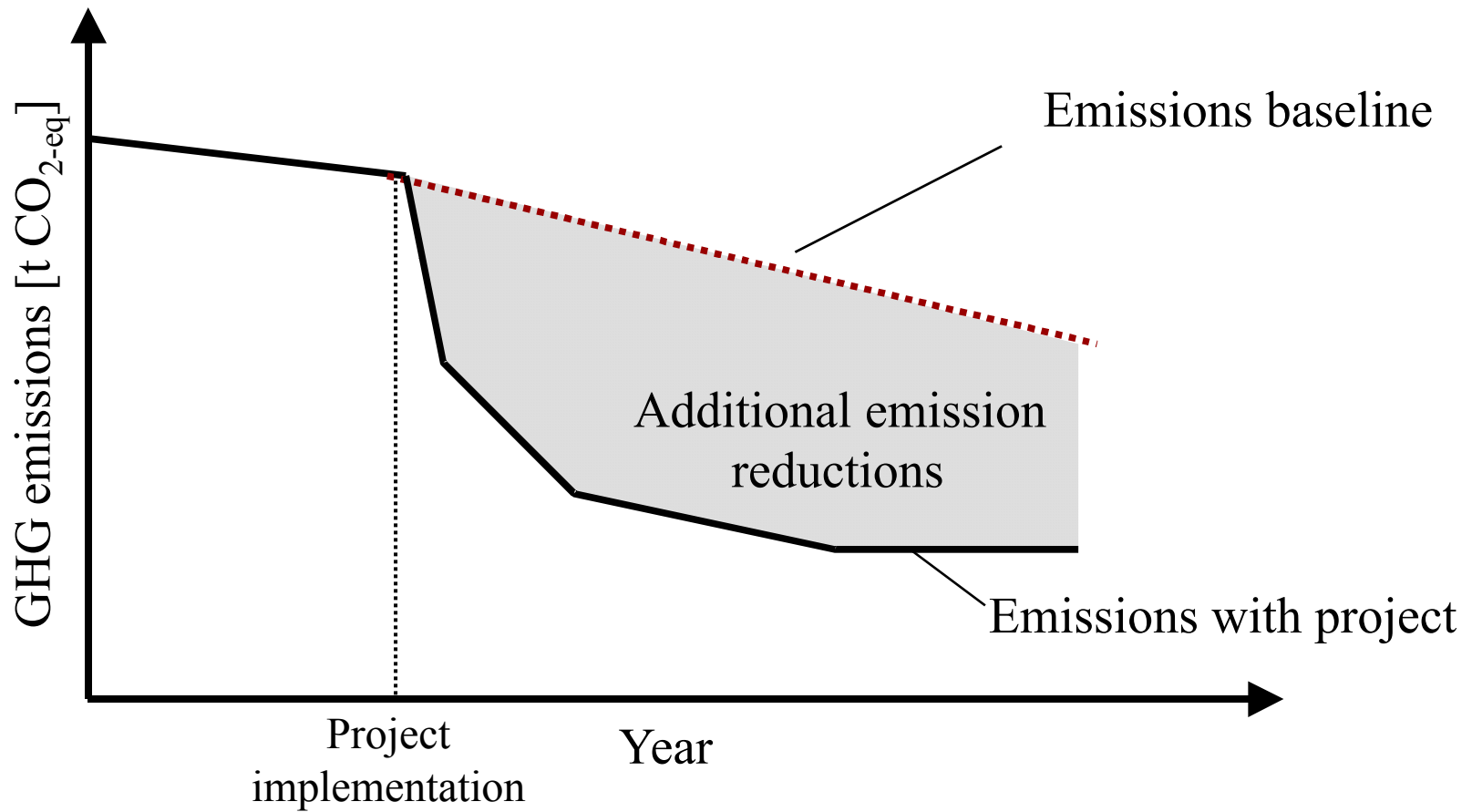
Joint Implementation / Clean Development Mechanism



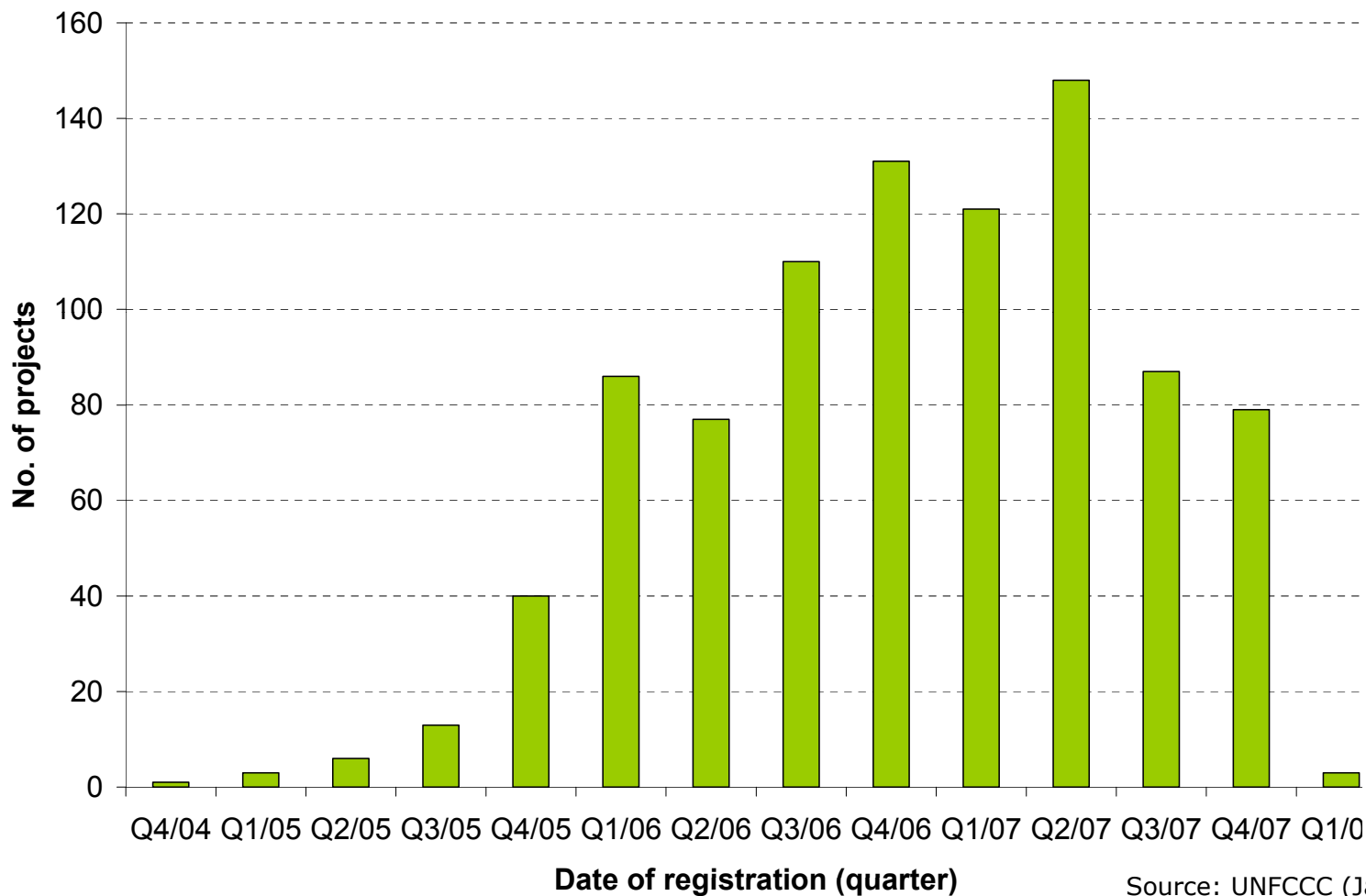
Eligible Project Types

- In principle, any project reducing “Kyoto gases” in the atmosphere:
 - Kyoto Gases: CO₂, CH₄, N₂O, HFC/PFC, SF₆
 - Popular project types:
 - Renewable energy generation (hydro, biomass, wind)
 - Energy efficiency projects
 - Landfill gas capture and waste management
 - Included also: afforestation and reforestation
 - Excluded: nuclear energy, avoided deforestation (forest protection)
- Tradable unit: “Certified emission reductions” (CER)
 - 1 CER equals 1 metric tonne of CO₂-equivalent (CO₂e)

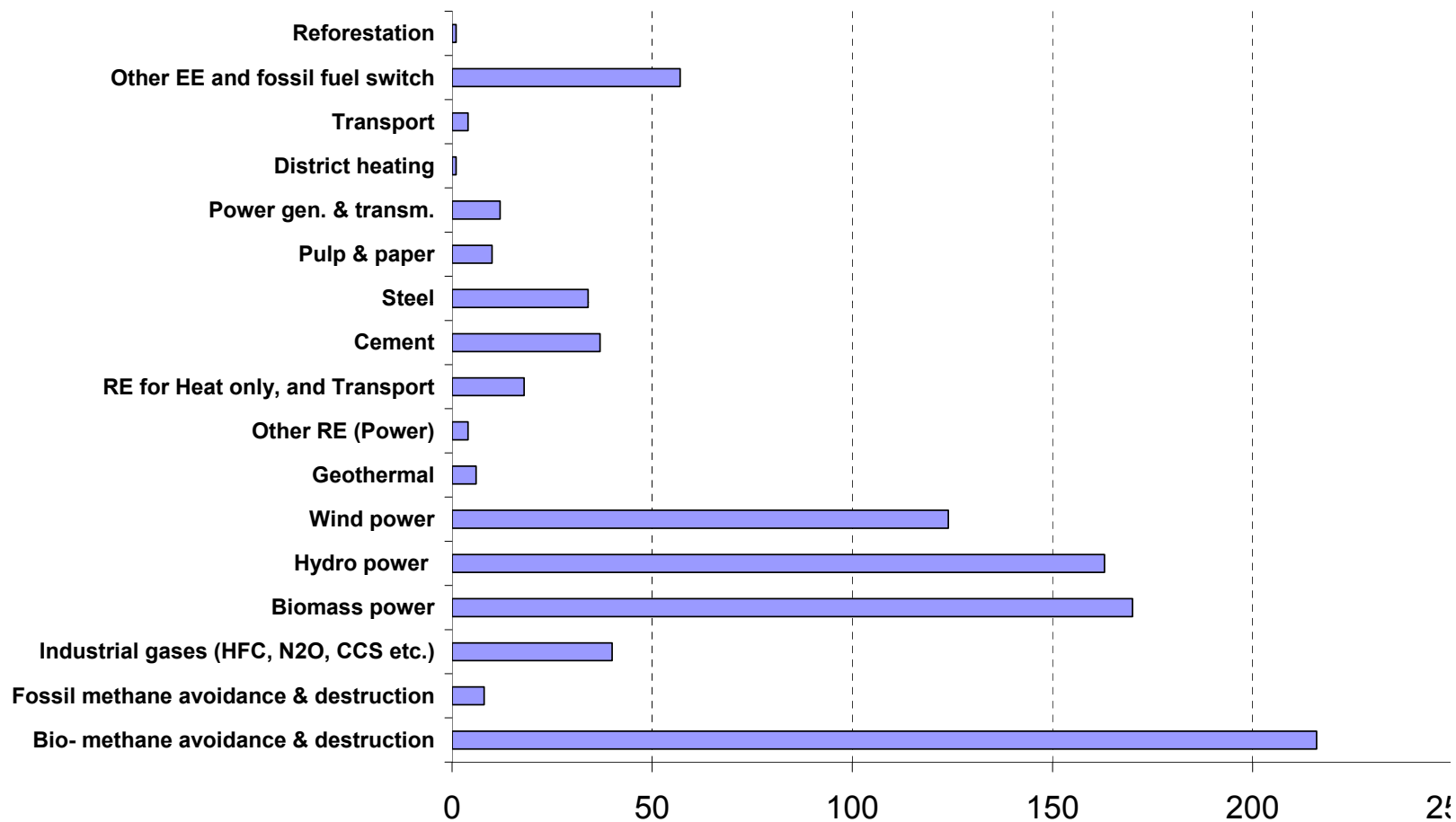
Baseline and Additionality of CDM Projects



Rate of New Registrations (per January 2008)



905 Registered CDM Projects (per January 2008)



Indian Experiences

Title	Type	Sub-type	1st period ktCO2/yr
Methane Extraction and Fuel Conservation Project at Tamil Nadu Newsprint and Papers Limited (TNPL), Kagithapuram, Karur District	Biogas	Biogas power	36
Bagepalli CDM Biogas Programme (5500 units of 2 m3)	Biogas	Biogas power	20
Off gases utilisation from C – 03 washing tower in Primary Reformer as fuel	Biogas	Biogas power	7
SIDPL Methane extraction and Power generation project	Biogas	Biogas power	46
Methane recovery and power generation in a distillery plant	Biogas	Biogas power	45
Avoidance of Wastewater and On-site Energy Use Emissions and Renewable Energy	Biogas	Biogas power	71
Methane recovery from waste water generated from wheat straw wash at Paper manufacturing unit of Shreyans Industries Limited (SIL)	Biogas	Biogas power	13
Methane Capture and use as fuel at Rajaram Maize Products, Chattisgarh	Biogas	Biogas power	5
The TIMARPUR-OKHLA Waste Management Company Pvt Ltd's (TOWMCL) intergrated waste to energy project in Delhi	Biogas	Biogas power	263
Biogas and Biomass based co-generation project at CDBL, India	Biogas	Biogas power	28
4.5 MW Industrial Waste based Grid-connected Power Project	Biomass energy	Palm oil solid waste	20
18 MW biomass power project in Tamilnadu, India (NM25)	Biomass energy	Forest	67
Bundle of 100 village biomass gasifier based power plants totalling 5.15 MW for	Biomass energy	Forest	43
Empee Distilleries 10 MW Woody Biomass-Based Power Project, Tamil Nadu	Biomass energy	Forest	28
Efficient use of industrial biomass residue for thermal energy generation	Biomass energy	Black liquor	43
WCPM Energy Efficiency Project	Biomass energy	Black liquor	36
Biomass based Cogeneration Power Project in Uttar Pradesh	Biomass energy	Black liquor	33
Shree Renuka Sugars (SRS) Bagasse Cogeneration	Biomass energy	Bagasse power	22
Grid connected bagasse based cogeneration project of Ugar Sugar Works	Biomass energy	Bagasse power	64

RSCL cogeneration expansion project	Biomass energy	Bagasse power	80
Ajbapur Sugar Complex Cogeneration Project	Biomass energy	Bagasse power	40
LHSF Bagasse Project	Biomass energy	Bagasse power	19
Deoband Bagasse based Co-generation Power Project	Biomass energy	Bagasse power	85
Maharashtra, Kurkumbh 1,5 MW Biomass / Bagasse based Co-generation power project	Biomass energy	Bagasse power	37
Ganpati co-generation project at Medak, Andhra Pradesh	Biomass energy	Bagasse power	49
Bagasse based power project at Jamkhandi Sugars Ltd, Bagalkot, Karnataka	Biomass energy	Bagasse power	15
Bagasse Based cogeneration power project of Rana Sugars Ltd, Amritsar District, Punjab	Biomass energy	Bagasse power	25
Forced Methane extraction from Organic wastewater, at Mandya District, Karnataka by M/s Sri Chamundeswari Sugars Ltd	Biomass energy	Bagasse power	34
Pandurang SSK RE Project	Biomass energy	Bagasse power	42
The Godavari Sugar Mills Ltd (TGSML)'s 24 MW Bagasse Based Co-generation Power Project at Sameerwadi	Biomass energy	Bagasse power	60
26 MW Biomass (Cogeneration) based Power generation Project activity	Biomass energy	Bagasse power	40
DSCL Sugar Ajbapur Cogeneration Project Phase II	Biomass energy	Bagasse power	57
Ramgarh Chini Mills RE project	Biomass energy	Bagasse power	47
Bagasse based Co-generation Project at Mawana Sugar Works.	Biomass energy	bagasse power	60
Installation of co-generation project at sugar manufacturing unit of Mawana Sugars Limited (Titawi)	Biomass energy	bagasse power	26
Bagasse based Co-generation Project at Titawi Sugar Complex	Biomass energy	bagasse power	22
Bagasse based Co-generation Project at Nanglamal Sugar Complex	Biomass energy	bagasse power	65

KM RE project	Biomass energy	Bagasse power	60
6.0 MW Biomass based cogeneration power plant of Rama Paper Mills Limited, Kiratpur, Uttar Pradesh	Biomass energy	Bagasse power	25
Bagasse based Cogeneration Project at Pudukkottai	Biomass energy	Bagasse power	87
Greenfield power project at Dwarikesh Dham	Biomass energy	Bagasse power	61
Power capacity expansion project at Dwarikesh Puram	Biomass energy	Bagasse power	41
SSML - Simbhaoli Biomass Power Project	Biomass energy	Bagasse power	45
Bagasse based Co-generation Power Project at Khatauli	Biomass energy	Bagasse power	87
Bagasse based Cogeneration Plant at Seohara, Uttar Pradesh.	Biomass energy	Bagasse power	80
NSSM – Narkatiaganj Biomass Power Project	Biomass energy	Bagasse power	13
Clarion 12 MW (Gross) Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: rice husk	26
3.5 MW Rice Husk based Cogeneration Project at Nahar Spinning Mills Ltd. (Punjab)	Biomass energy	Agricultural residues: rice husk	22
3.5 MW Rice Husk based Cogeneration Project at Oswal Woolen Mills Ltd	Biomass energy	Agricultural	22
24 MW biomass based renewable electricity generation & consumption in Ropar Punjab	Biomass energy	Agricultural	26
DSL Biomass based Power Project at Pagara	Biomass energy	Agricultural residues: rice husk	17
Rice Husk Based Power Project	Biomass energy	Agricultural residues: rice husk	21
JCT Phagwara Small Scale Biomass Project	Biomass energy	Agricultural residues: rice husk	28
Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: rice husk	35

8.5 MW Biomass based Power Plant	Biomass energy	Agricultural residues: rice husk	46
6.5 MW biomass based (rice husk) power generation by M/s Indian Acrylics Ltd.	Biomass energy	Agricultural residues: rice husk	21
Cogeneration system based on biomass (rice-husk) replacing oil fired boiler for process steam and generating power for partly replacement of grid power supply to the plant at M/s Indian Acrylics Ltd., District Sangarur, Punjab	Biomass energy	Agricultural residues: rice husk	44
Sri Balaji 6 MW Non-Conventional Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: rice husk	29
10 MW Biomass (Rice Husk) Based Power Generation Unit of M/s Rukmani Power and Steel Ltd.(RPSL)	Biomass energy	Agricultural residues: rice husk	63
Rice Husk based Cogeneration project at Shree Bhawani Paper Mills Limited (SBPML), JCT Hoshiarpur Small Scale Biomass Project	Biomass energy	Agricultural residues: rice husk	15
	Biomass energy	Agricultural residues: rice husk	31
4 MW renewable energy project by Sri Kalyani Agro Products & Industries Ltd	Biomass energy	Agricultural residues: rice husk	14
6 MW renewable energy project for a grid system by Gayatri Agro Industrial Power Limited	Biomass energy	Agricultural residues: rice husk	24
5 MW Biomass based Cogeneration project* at Solan, Himachal Pradesh, by M/s Deepak Spinners Limited	Biomass energy	Agricultural residues: rice husk	27
Agrawal RE Project	Biomass energy	Agricultural residues: rice husk	36
RREPL – 14 MW Rice Husk Power Project	Biomass energy	Agricultural residues: rice husk	55
Biomass Based Cogeneration Units at Uttar Pradesh	Biomass energy	Agricultural residues: rice husk	53
Biomass based power plant at Siltara, Raipur, Chhattisgarh	Biomass energy	Agricultural residues: rice husk	36

ISA Power 8 MW (Gross) Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: rice husk	21
Ecofren Power 8 MW Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: rice husk	21
6MW Biomass based Power Plant at Nellore.	Biomass energy	Agricultural residues: rice husk	17
Malwa Industries, Ludhiana Small Scale Biomass Project	Biomass energy	Agricultural residues: rice husk	25
7.5 MW Non-Conventional Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: rice husk	36
Rice husk based cogeneration power plant-II at SBPML	Biomass energy	Agricultural residues: rice husk	14
8.0 MW Biomass Based Power Project at Mahasamund	Biomass energy	Agricultural residues: rice husk	31
8 MW biomass based renewable energy generation for the grid, Gondia District, Maharashtra	Biomass energy	Agricultural residues: rice husk	28
Rice Husk based power project at Satia Paper Mills Limited (SPML), Punjab	Biomass energy	Agricultural residues: rice husk	23
10 MW Biomass Based Power project of Ind Power Limited	Biomass energy	Agricultural residues: rice husk	34
1.25 MW biomass based captive power plant by UP Asbestos Limited at Lucknow.	Biomass energy	Agricultural residues: rice husk	6
6 MW Rice Husk based cogeneration plant at Bhageshwari Papers Private Limited	Biomass energy	Agricultural residues: rice husk	29
6 MW Biomass Residue Based Cogeneration Unit by MPML at Village Heti (Surla), District Nagpur in Maharashtra	Biomass energy	Agricultural residues: rice husk	74

3 MW Poultry Litter Based Power Generation Project, Hyderabad	Biomass energy	Agricultural residues: poultry litter	66
Rithwik 6 MW Renewable Source Biomass Power Project	Biomass energy	Agricultural	13
8 MW biomass based power project at Hassan	Biomass energy	Agricultural	43
Satyamaharshi 6 MW Biomass Power Project	Biomass energy	Agricultural	23
KMS Power 6 MW Renewable Sources Biomass Power Project	Biomass energy	Agricultural	16
Perpetual 7.5 MW Non-Conventional Renewable Sources Biomass Power Project	Biomass energy	Agricultural	20
4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli	Biomass energy	Agricultural	21
Emission reduction through partial substitution of fossil fuel with alternative fuels like	Biomass energy	Agricultural	52
Chambal Power Ltd (CPL) proposed 7.5 MW biomass based power project at Rangpur,	Biomass energy	Agricultural	50
4.5 MW Biomass (Agricultural Residue) Based Power Generation Unit of M/s Matrix Power	Biomass energy	Agricultural	22
Emission reduction through partial substitution of fossil fuel with alternative fuels like	Biomass energy	Agricultural	87
Biomass based independent power project at Malwa Power Private Limited, Mukatsar, Punjab	Biomass energy	Agricultural residues: other kinds	44
SRGEL Non-Conventional Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: other kinds	21
Switching of fossil fuel from Naptha & Diesel to Biomass (agricultural residue) for 9 MW Power Generation Unit of M/s. My Home Power limited (MHPL) and Supply to APTRANSCO Grid.	Biomass energy	Agricultural residues: other kinds	42
7.5 MW Biomass Plants using Agricultural Waste Limited	Biomass energy	Agricultural residues: other kinds	70
7.5 MW Grid Connected Biomass Power Project	Biomass energy	Agricultural residues: other kinds	23
Partial replacement of fossil fuel by biomass, for Pyro-Processing in cement plant of Shree Cements LTD at Beawar in Rajasthan	Biomass energy	Agricultural residues: other kinds	107
10.0 MW Biomass based independent power project at Jalkheri Power, Jalkheri, Punjab	Biomass energy	Agricultural residues: other kinds	30
Biomass based captive cogeneration project at Shri Renuga Textiles	Biomass energy	Agricultural residues: other kinds	19

Shalivahana Non-Conventional Renewable Sources Biomass Power Project	Biomass energy	Agricultural residues: other kinds	23
6 MW renewable energy project for a grid system by Sri Indra Power Energies Limited	Biomass energy	Agricultural residues: other kinds	18
6 MW renewable energy project for a grid system by Ind-Barath Energies Ltd.	Biomass energy	Agricultural	25
6.0 MW Biomass based power project of Agri Gold Projects Limited (AGPL), Prakasham	Biomass energy	Agricultural	25
6 MW Renewable energy generation project by Varam Power Projects in India	Biomass energy	Agricultural residues: other kinds	22
Fuel switch from fossil fuel to renewable biomass for thermal energy application, in North India.	Biomass energy	Agricultural residues: other kinds	17
Partial replacement of fossil fuel by Biomass for Pyro-Processing in Kiln at Cement	Biomass energy	Agricultural	183
6 MW Biomass based grid connected Power Project, Andhra Pradesh, India	Biomass energy	Agricultural residues: other kinds	26
Biomass based renewable energy project in a Solvent Extraction Plant	Biomass energy	Agricultural residues: other kinds	25
R K Powergen 20MW Grid connected renewable energy biomass power project	Biomass energy	Agricultural residues: other kinds	108
Grid connected 13MW biomass power project in Maharashtra	Biomass energy	Agricultural residues: other kinds	67
7.5 MW renewable energy generation for a grid, Karnataka, India	Biomass energy	Agricultural residues: other kinds	24
Boiler Fuel Conversion at Perstorp Chemicals India Private Limited (PCIPL)	Biomass energy	Agricultural	17
Boiler Fuel Conversion from RFO to Biomass Based Briquettes at Pfizer Limited,	Biomass energy	Agricultural	6
10 MW Renewable energy generation for the grid, Parbhani District, Maharashtra	Biomass energy	Agricultural residues: other kinds	43
9.8 MW Biomass based power plant at Lahari Power & Steels limited in Champa-Janjgir	Biomass energy	Agricultural	38
9.8 MW Renewable Energy Generation for the grid at South Asian Agro Industries Limited	Biomass energy	Agricultural	37
Substitution of coal with jute biomass residue (caddies) in the steam generating boiler for	Biomass energy	Agricultural	5
10 MW biomass based renewable energy generation for the grid in Amaravathi District of	Biomass energy	Agricultural	43

10 MW biomass based power generation project at Wani, Yavatmal by Shalivahana	Biomass energy	Agricultural	48
9 MW Renewable Energy Grid Connected Biomass Power Project	Biomass energy	Agricultural	48
Hot air generation using renewable biomass fuel for spray drying and vertical drying	Biomass energy	Agricultural	10
Biomass in Rajasthan - 7.8 MW from mustard crop residues	Biomass energy	Agricultural residues: mustard crop	31
APCL proposed 7.5 MW mustard crop residue base power project	Biomass energy	Agricultural residues: mustard crop	39
7.5 MW Biomass (Mustard Crop Residue) Power Project at Amrit Environmental Technologies Private Ltd, Kotpuli Tehsil, Jaipur, Rajasthan	Biomass energy	Agricultural residues: mustard crop	35
Biomass Power Project at Kalpataru Energy Venture Private Limited, Bayana Tahsil, Bharatpur District, Rajasthan	Biomass energy	Agricultural residues: mustard crop	45
"Optimal utilization of clinker" at Shree Cement Ltd, Beawar, Rajasthan	Cement		68
ACC Blended cement projects at New Wadi Plant, Tikaria Cement Plant, Chanda Cement	Cement		405
GACL Blended cement projects in India	Cement		552
Optimum utilisation of clinker by production of Pozzolana Cement at UltraTech Cement Ltd.	Cement		42
Optimal Utilization of Clinker in PPC manufacturing at Birla Corporation Limited (BCL), Raebareilly Unit	Cement		26
Blended cement with increased blend at Orient cement's Devapur and Jalgaon plants	Cement		83
Optimum utilization of clinker by PCC production at Binani Cement Ltd, Rajasthan	Cement		22
Optimal utilization of clinker: Substitution of Clinker by Fly ash in Portland Pozzolana Cement blend at OCL	Cement		13
Mysore Cements Limited Portland Slag Cement project	Cement		36
Optimal utilization of clinker: Substitution of Clinker by Slag in Portland Slag Cement at OCL, Rajgangpur, Sundargarh, Orissa	Cement		42
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Century Textiles & Industries Ltd blended cement projects at: Century cement, Manikgarh	Cement		153
Demand-side energy efficiency programme in the 'Humidification Towers' of Jaya Shree	EE industry	Textiles	3
Energy efficiency projects - Steam system upgradation at the manufacturing unit of Birla	EE industry	Petrochemical	5
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Energy efficiency through steam optimisation projects at RIL, Hazira	EE industry	Petrochemical	23
Demand side energy conservation & reduction measures at IPCL – Gandhar Complex	EE industry	Petrochemicals	11

Waste heat recovery project project based on technology upgradation at Apollo Tyres.	EE industry	Petrochemical	23
GHG emission reduction through the installation of energy efficient vacuum creating	EE industry	Petrochemical	136
Waste heat recovery from Process Gas Compressors (PGCs), Mumbai high south and	EE industry	Petrochemical	5
Up-gradation of Gas Turbine 1 (GT 1) and Gas Turbine 2 (GT 2) at co-generation plant of Hazira Gas Processing Complex (HGPC) of Oil and Natural Gas Corporation Limited (ONGC)	EE industry	Petrochemicals	8
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Optimization of steam consumption by applying retrofit measures in blow heat recovery	EE industry	Paper	23
Optimization of steam consumption at the evaporator	EE industry	Paper	52
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Energy Efficiency Measures At Paper Production Plant	EE industry	Paper	3
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Low Grade Ore (LGO) beneficiation by Rajasthan State Mines & Minerals Limited	EE industry	Mining	5
Energy Efficiency Improvement in Electric Arc Furnace at Indian Seamless Metal Tube	EE industry	Iron & steel	7
Fuel efficiency improvement in glass melting	EE Industry	Glass	15
Energy efficiency through installation of modified CO2 removal system in Ammonia Plant	EE industry	Chemicals	24
Efficient utilization of waste heat and natural gas at the Dahej complex of GACL	EE industry	Chemicals	5
Alternate arrangement for preheating fuel NG	EE industry	Chemicals	2
Installation of Additional Urea Trays in Urea Reactors (11/21- R01)	EE industry	Chemicals	3
Reduction in steam consumption through revamping of Ammonia plant	EE industry	Chemicals	295
Avoidance of Methane gas emission to atmosphere from C-03 washing tower by effectively	EE industry	Chemicals	10
Installation of Plate Type Heat Exchanger for preheating combustion air of primary reformer	EE industry	Chemicals	12
Reducing heat loss into atmosphere along with the flue gases by utilizing it for preheating	EE industry	Chemicals	2
Effective utilization of waste heat by installing vacuum pre-concentrator in urea section at Indo Gulf Fertilisers (A Unit of Aditya Birla Group), Jagdishpur	EE industry	Chemicals	33
Energy efficiency improvement in power generation at Sajjan India Limited, Ankhleshwar,	EE Industry	Chemicals	25
Greenhouse gas (GHG) reduction by implementing energy efficient plough share mixer	EE Industry	Chemicals	15
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Process Waste Heat utilization for power generation at Phillips Carbon Black Limited,	EE own generation	Paper	46

Waste heat recovery based power plant at Hindustan Zinc Limited, Chanderia.	EE own generation	Non-ferrous metals	52
12MW Captive Power Project based on Waste Heat Recovery of Industrial Waste Gases	EE own generation	Iron & steel	78
Electricity generation at 8 MW captive power plant using enthalpy of flue gases from blast	EE own generation	Iron & steel	63
TSIL - Waste Heat Recovery Based Power Project	EE own generation	Iron & steel	32
Waste heat based 7 MW captive power project Godawari Power and Ispat Ltd (GPIL)	EE own generation	Iron & steel	18
JBSL - Waste heat recovery based captive power project	EE own generation	Iron & steel	46
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OSIL - Waste Heat Recovery Based Captive Power Project	EE own generation	Iron & steel	41
8 MW waste heat recovery captive power project at OCL	EE own generation	Iron & steel	32
Usha Martin Limited - Waste Heat Recovery Based Captive Power Project activity	EE own generation	Iron & steel	54
Generation of Electricity through combustion of waste gases from Blast furnace and Correx	EE own generation	Iron & steel	767
VGL - Waste heat 4 MW Captive power project at Raipur	EE own generation	Iron & steel	19
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Efficiency improvement of Turbine Generator to reduce fossil fuel consumption in the Coal	EE supply side		4

Energy Efficiency Measures at a Thermal Power Generating Station Of CESC-limited,	EE supply side		4
Supply side energy efficiency improvements in steam generation at CSL by	EE supply side		9
Improvement in energy efficiency of steam generation and power consumption at Recron	EE supply side		5
Supply side energy efficiency measures at Tata Chemicals Limited, Mithapur	EE supply side		9
Energy Efficiency through Alteration of fuel oil atomizing media in coal-fired thermal power	EE supply side		32
Switching of fuel from Natural Gas to Hydrogen in CCU-II at Dahej complex of GACL	Fossil fuel switch		9
Switching of fuel from naphtha to natural gas in the captive power plant(CPP) at Dahej	Fossil fuel switch		99
Switching of fossil fuel from HSD to Natural gas by replacing the Diesel engines	Fossil fuel switch		2
Switching of fuel from Naphtha to Natural gas at United Phosphorus Limited (UPL)	Fossil fuel switch		56
Fuel switch from fossil fuels to biomass briquettes for steam generation at the chemicals	Fossil fuel switch		7
119.8 MW Natural Gas based Combined Cycle Power Plant, at Tanjavur, Tamilnadu	Fossil fuel switch		181
Grid-connected Combined Cycle Power Plant of capacity 219.067 MW using Natural	Fossil fuel switch		214
1147.5 MW Natural gas based grid connected Combined cycle power generation project of	Fossil fuel switch		3,190
155 MW Gas based combined cycle power project at Hazira	Fossil fuel switch		191
Flare gas recovery project at Uran plant, Oil and Natural Gas Corporation (ONGC) Limited	Fugitive		98
GHG emission reduction by thermal oxidation of HFC 23 in Gujarat	HFCs		3,393
GHG emission reduction by thermal oxidation of HFC 23 at refrigerant (HCFC-22)	HFCs		3,834
Destruction of HFC-23 at refrigerant (HCFC-22) manufacturing facility of Chemplast	HFCs		539
GHG emission reduction by thermal oxidation of HFC 23 at Navin Fluorine International	HFCs		2,802
Patikari Hydro Electric Power Project in Distt-Mandi, Himachal Pradesh	Hydro	Run of river	59
5 MW Dehar Grid-connected SHP in Himachal Pradesh	Hydro	Run of river	16
6MW Somnamaradi grid-connected SHP in Karnataka	Hydro	Run of river	17
4.5 MW Mauji Grid-connected SHP in Himachal Pradesh, India	Hydro	Run of river	13
10.25MW Chunchi Doddi SHP in Karnataka	Hydro	Run of river	25
Mahatma Gandhi Hydro Electric Tail Race Hydro Power Project of APPL	Hydro	Run of river	96
Dolowal, Salar and Bhanubhura Mini Hydroelectric Project	Hydro	Run of river	21
Babanpur, Killa and Sahoke Mini Hydroelectric Projects	Hydro	Run of river	23
Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects	Hydro	Run of river	25
Aleo Manali 3 MW Small Hydroelectric Project	Hydro	Run of river	14
Manal, Chandni and Timbi Small Hydroelectric Projects of HCPL	Hydro	Run of river	39
Vajra and Chaskaman small hydro projects of Vindhyaal hydro	Hydro	Run of river	19
18 MW Kemphole Mini Hydel Scheme (KMHS) by Int. Power Corp. Ltd. India	Hydro	Run of river	36
11.3 MW renewable Energy Project for a Grid System by K.M.Power (P) Limited	Hydro	Run of river	21
Hebbakavadi canal based mini hydro project in Karnataka	Hydro	Run of river	3
Middle and Lower Kolab Hydroelectric Projects	Hydro	Run of river	119
Taraila Small Hydroelectric Project of Ginni Global Ltd.	Hydro	Run of river	25
10 MW Renewable energy project for grid at Taraila, Himachal Pradesh	Hydro	Run of river	36
24 MW Chayadevi Mini Hydro power project in Karnataka	Hydro	Run of river	42
Allain Duhanqan Hydroelectric Project (ADHP)	Hydro	Run of river	495
Birahi Ganga Hydro Electric Project	Hydro	Run of river	22
1.5 MW Link Canal Mini Hydel Project	Hydro	Run of river	3

Varahi Tail Small Hydro Power Project of SPCL in Karnataka	Hydro	Run of river	100
Lower Manair Mini Hydel Scheme at Kakatiya Canal located in Andhra Pradesh	Hydro	Run of river	6
22.5 MW Bhilangana Hydro Power Project (BHPP)	Hydro	Run of river	109
5 MW Renewable Energy Project for a Grid system, India at Beas Nallah in Kullu district of	Hydro	Run of river	17
"2 X 5 MW Upper khauli & Drinidhar small hydroelectric project for a grid system",	Hydro	Run of river	37
2 X 5MW Baner Khad & Iku Khad Hydro Electric Projects, in Himachal Pradesh	Hydro	Run of river	36
2.2 MW hydropower plant in Birsinghpur, Madhya Pradesh of Ascent Hydro Projects	Hydro	Run of river	14
"Neora Hydro Limited (NHL)" at Sakam Basti village, Darjeeling district, West Bengal	Hydro	Run of river	13
"3MW Iruttukanam Small Hydro Electric Project, Kerala, India" at Viyyat Power Private	Hydro	Run of river	10
Jorethang Loop Hydroelectric Project	Hydro	New dam	466
20 MW Kabini Hydro Electric Power Project, SKPCL	Hydro	Existing dam	45
12 MW hydropower plant in Bhandardara in Maharashtra	Hydro	Existing dam	30
4.05 MW Grid-connected Small Hydroelectric Project in Andhra Pradesh	Hydro	Existing dam	8
20 MW Samal Grid-connected Hydroelectric Project in Orissa	Hydro	Existing dam	107
4.5MW grid-connected Sugur Mini Hydel Scheme in Karnataka, India.	Hydro	Existing dam	8
6.25 MW grid-connected Sattigala Mini Hydel Scheme at SLS Power Industries Ltd., in	Hydro	Existing dam	11
1.5MW Deogad hydroelectric project in Maharashtra district Sindudurg, India by M/s Gadre	Hydro	Existing dam	4
Methane Avoidance by Municipal Solid Waste Processing in the city of Chandigarh, India	Landfill gas	Landfill power	40
SESL 6 MW Municipal Solid Waste Based Power Project at Vijayawada & Guntur,	Landfill gas	Gasification of	65
Biomass Gasification based Power Generation by Arashi Hi-Tech Bio-Power Private Limited	Landfill gas	Gasification of	7
Solar steam for cooking and other applications	Solar	Solar cooking	1
Installation of Low Green House Gases (GHG) emitting rolling stock cars in metro system	Transport		41
Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon	Wind		98
Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon	Wind		42
125 MW wind power project in Karnataka	Wind		253
Nagda Hills Wind Energy Project	Wind		11
37.6 MW bundled wind power project in Nagercoil, Tamilnadu	Wind		58
21 MW Bundled Wind Power Project in Vankuwade, Maharashtra	Wind		34
13.4 MW bundled wind power project in Chitradurga, Karnataka	Wind		21
4.2 MW Wind power project in Maharashtra, by Bharat Forge Limited	Wind		8
"14.65 MW Wind Power Project" in Maharashtra by BF Utilities Ltd.	Wind		23
Generation of electricity from 6.25 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd at	Wind		9
Generation of electricity from 4 MW capacity wind mills by Sun-n-Sand Hotel group at	Wind		8
Generation of electricity from 2.5 MW capacity wind mills by Gujarat JHM Hotels Ltd. Ltd at	Wind		3
Generation of electricity from 1.2 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd at	Wind		3
NSL 27.65 MW Wind Power Project in Karnataka, India	Wind		57
3.75 MW Small Scale Grid Connected "Demonstration Wind Farm Project" at Chalkewadi,	Wind		7
12.3 MW wind energy project in Tamil nadu, India	Wind		14
5 MW Wind Project at Baramsar and Soda Mada, Jaisalmer, Rajasthan	Wind		6
14.8 MW small-scale grid connected wind power project in Jaisalmer state Rajasthan	Wind		13
11.35 MW Grid Connected Wind Electricity Project at Pohra (Rajasthan)	Wind		14

12 MW Bundled Wind Power Project in Tenkasi, Tamilnadu	Wind		23
25.70 MW Bundled Wind Power Project in Udumalpet, Tamilnadu	Wind		41
7.5 MW wind farm of REI Agro Ltd. at Soda village in the state of Rajasthan	Wind		11
10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan.	Wind		16
15.4 MW wind farm at Satara District, Maharashtra	Wind		22
56.25 MW bundled wind energy project in Tirunelveli and Coimbatore districts in Tamilnadu	Wind		47
Grid-connected electricity generation from renewable sources at Kadavakallu, Putluru	Wind		17
Wind Electricity Generation at Erakandurai, Dist:Tirunavalli by M/s GHCL Ltd	Wind		8
11.25 MW wind power project in Dhule, Maharashtra	Wind		16
3 MW Wind Power Project at Chikkasiddavanahalli village, Chitradurga district, Karnataka	Wind		5
5 MW Wind Power Project of Alembic Limited at Bhavnagar, India	Wind		9
Bundled wind power projects in Satara & Supa (Maharashtra in India) managed by TATA	Wind		32
8.75 MW Wind Power Project in Gujarat	Wind		15
FDSPL-Wind Based Power Generation Project	Wind		24
Bundled 3.0 MW Wind Energy Project in Tamilnadu	Wind		6
7.25 MW Wind Energy Project of Aruppukottai Sri Jayavilas Ltd, Tamilnadu, India.	Wind		13
7.85 MW Bundled Wind Power Project in Southern India	Wind		16
Bundled 15 MW Wind Power Project in India	Wind		33
4 MW Bundled Grid Connected Wind Power Project in Tamilnadu, India.	Wind		8
3.7 MW Bundled Wind Power Project at Priyadarshini Polysacks Ltd. Dhulia District	Wind		7
4.5 MW Wind Power Project in Kadavakallu, Andhra Pradesh	Wind		7
75MW wind power project in Maharashtra by Essel Mining Industries Limited	Wind		118
11.2 MW Wind Power project in Tamilnadu, by Amarjothi Group	Wind		24
Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning	Wind		687
15 MW Grid Connected Wind Energy Project at Sankaneri Village in Tamil Nadu	Wind		37
14.85 MW Grid connected Wind farm project, at various locations in Tamil Nadu, by M/s	Wind		28
7.2 MW Wind Project at Chitradurga, Karnataka	Wind		14
Eco Friendly Electricity Export to Grid	Wind		19
Priyata Intercontinental Wind Power Project	Wind		7
8.75MW Bundle Wind Power Project in Maharashtra	Wind		17
LITL's Wind Project at Tamil Nadu	Wind		23
6.75 MW Small Scale Grid Connected "Wind Electricity Generation Project" by Tamil Nadu	Wind		14
2.5 MW BEL grid-connected wind power project at Davanagere district, Karnataka, India	Wind		5
Generation of electricity from 12.8 MW capacity wind mills by Avinash Bhosale group at	Wind		20

Contents

- 1. First Climate Company Profile**
- 2. CDM Potential in the Pakistan**
- 3. CDM Happenings**
- 4. First Climate Refernces**

Track Record in a Nutshell (as of June 2007)

Carbon Financing

- Executed transactions from initial offering to final contract
- Transacted with the most credible Buyers in the market
- 20 Million tons of CO₂ transacted since 2004, with a market value exceeding € 125 million

Carbon Asset Development

- Over 20 registered CDM Projects
- Over 20 more at validation
- Over 60 projects under development
- Total pipeline exceeding 20 Mt CO₂ to 2012
- Over € 475 million internal carbon fund
- Over € 800 million carbon funds under "exclusive management"

First Climate Track Record: CDM Projects

Volume t CO ₂ e	Vintages	Host Country	Project Type
300'000	2005-11	India	Biomass energy
61'000	2005-12	India	Biomass energy
500	2004-13	Costa Rica	Biomass energy
960'000	2008-12	Costa Rica	Landfill gas
5'000	2005-11	India	Solar energy
1'900'000	2005-12	Brasil	Landfill gas
1'300'000	2005-12	Brasil	Landfill gas
1'300'000	2006-12	Brasil	Landfill gas
162'000	2004-12	India	Hydro
105'000	2004-12	India	Hydro
200'000	2005-12	India	Hydro
120'000	2005-12	India	Hydro
840'000	2007-12	India	Hydro
90'000	2005-12	India	Biomass energy
50'000	2006-12	India	Hydro
210'000	2007-12	India	Hydro
21'000	2008-12	India	Hydro
150'000	2008-12	India	Hydro
180'000	2007-12	India	Hydro
210'000	2007-12	India	Biomass energy
810'000	2006-12	India	Biodiesel
360'000	2007-12	India	Energy efficiency
189'000	2007-12	India	Biodiesel
90'000	2007-12	India	Energy efficiency

First Climate Track Record: CDM Projects

Volume t CO ₂ e	Vintages	Host Country	Project Type
300'000	2007-12	India	Hydro
300'000	2007-12	India	Hydro
84'000	2007-12	India	Hydro
315'000	2008-12	India	Energy efficiency
105'000	2008-12	India	Fuel switch
270'000	2008-12	India	Hydro
840'000	2007-12	India	Hydro
350'000	2006-12	India	Hydro
450'000	2006-12	India	Hydro
1'015'000	2007-12	India	Hydro
560'000	2007-12	India	Biomass energy
280'000	2009-12	India	Biomass energy
280'000	2008-12	India	Biomass energy
105'000	2008-12	India	Hydro
140'000	2009-12	India	Hydro
0	2006-12	India	Fuel switch
315'000	2009-12	India	Hydro
525'000	2009-12	India	Hydro
400'000	2008-12	Mali	Fuel switch
92'000	2007-12	Switzerland	Biomass energy
150'000	2007-12	China	Hydro
400'000	2008-12	China	Hydro
120'000	2007-12	Brazil	Fuel switch
50'000	2008-12	Indonesia	Energy efficiency
50'000	2007-12	Indonesia	Landfill gas
300'000	2008-12	Argentina	Biomass energy
20'000	2007-2012	Nepal	Solar energy

First Climate Track Record: CDM Projects

139'000	2008-12	Romania	Fuel Switch, En.eff.
60'000	2008-12	Romania	Energy efficiency
150'000	2008-12	Romania	Energy efficiency
500'000	2008-12	Romania	Energy efficiency
200'000	2008-12	Romania	Biomass energy
5'000'000	2008-12	Romania	N2O
300'000	2008-12	Estonia	Methane recovery
200'000	2008-12	Estonia	Biomass energy
1'000'000	2008-12	Bulgaria	Biofuel, transportation
175'000	2008-12	Bulgaria	Biofuel, energy efficiency
600'000	2008-12	Bulgaria	Landfill gas
200'000	2008-12	Bulgaria	Methane recovery
650'000	2008-12	Czech Republic	Dist. Heating, Geotherm
238'000	-	Czech Republic	Fuel Switch, En.eff.
247'000	2008-12	Slovak Republic	Energy efficiency
40'000	2008-12	Poland	Energy efficiency
140'000	2008-12	Poland	Energy efficiency
145'000	2008-12	Lithuania	Energy efficiency

First Climate Track Record: CDM Projects

139'000	2008-12	Romania	Fuel Switch, En.eff.
60'000	2008-12	Romania	Energy efficiency
150'000	2008-12	Romania	Energy efficiency
500'000	2008-12	Romania	Energy efficiency
200'000	2008-12	Romania	Biomass energy
5'000'000	2008-12	Romania	N2O
300'000	2008-12	Estonia	Methane recovery
200'000	2008-12	Estonia	Biomass energy
1'000'000	2008-12	Bulgaria	Biofuel, transportation
175'000	2008-12	Bulgaria	Biofuel, energy efficiency
600'000	2008-12	Bulgaria	Landfill gas
200'000	2008-12	Bulgaria	Methane recovery
650'000	2008-12	Czech Republic	Dist. Heating, Geotherm
238'000	-	Czech Republic	Fuel Switch, En.eff.
247'000	2008-12	Slovak Republic	Energy efficiency
40'000	2008-12	Poland	Energy efficiency
140'000	2008-12	Poland	Energy efficiency
145'000	2008-12	Lithuania	Energy efficiency

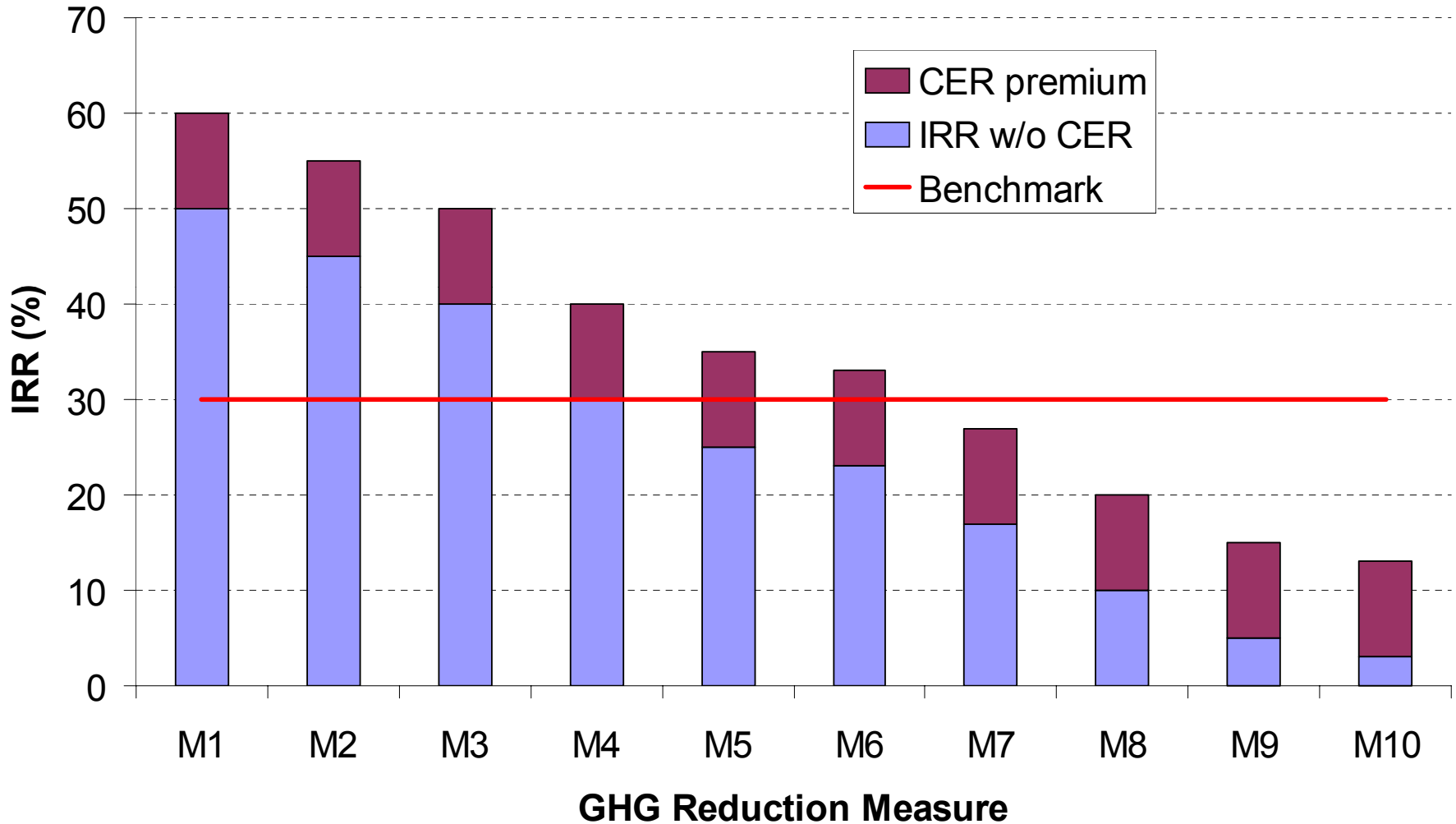
First Climate Track Record: CDM Projects

1'380'000	2004-12	Russia	Methane recovery
1'800'000	2008-12	Russia	Methane recovery
2'700'000	2008-12	Russia	Methane recovery
600'000	2008-12	Russia	Flaring
2'800'000	2008-12	Russia	Flaring
780'000	2008-12	Russia	Industrial energy efficiency
465'000	2008-12	Russia	Dist. Heating, fuel switch
280'000	2008-12	Russia	Energy efficiency
960'000	2008-12	Russia	Gas capture
2'200'000	2008-12	Ukraine	Gas capture
990'000	2008-12	Ukraine	Power, energy efficiency
590'000	2008-12	Ukraine	Gas capture
620'000	2008-12	Ukraine	Wind energy
200'000	2008-12	Ukraine	Industrial energy efficiency
500'000	2004-12	Belarus	Energy efficiency
350'000	2008-12	Kazakhstan	Hydro power
50'000	2008-12	Kazakhstan	Solar energy

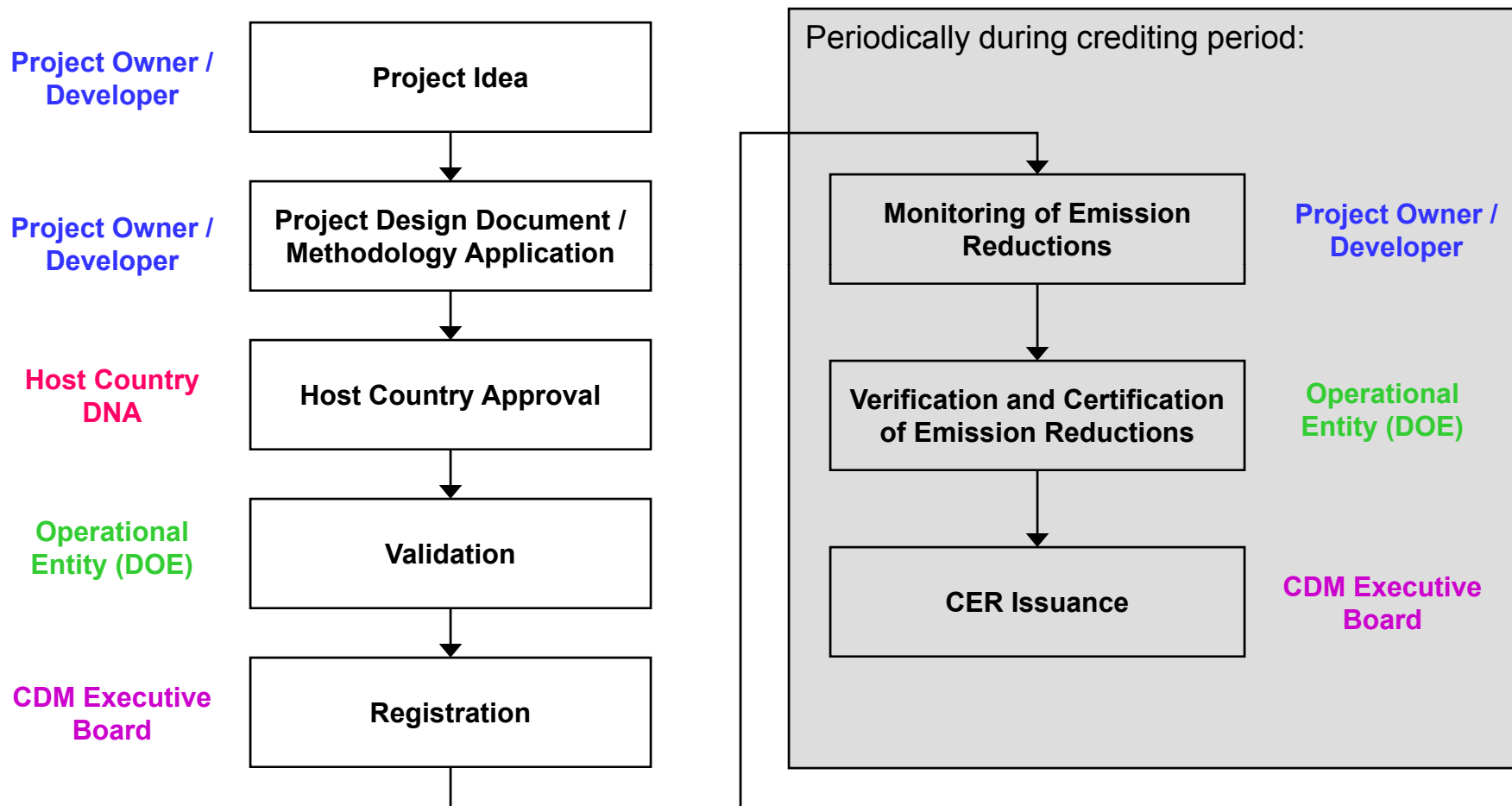
First Climate Track Record: CDM Projects

500'000	2006-12	Tajikistan	Hydro
350'000	2005-12	Tajikistan	Hydro
0	2007-12	Moldova	BioEthanol
1'000'000	2006-2012	Uzbekistan	Hydro
1'800'000	2006-2012	Uzbekistan	Power, energy efficiency
120'000	2006-2012	Uzbekistan	Heating, energy efficiency
900'000	2006-2012	Uzbekistan	Hydro power
500'000	2006-2012	Uzbekistan	Lightning efficiency
500'000	2006-2012	Uzbekistan	Transportation, fuel switch
350'000	2006-2012	Uzbekistan	Dist.Heating, energy efficiency
20'000	2005- 2012	Kyrgyz Republic	Energy efficiency
100'000	2006-2012	Kyrgyz Republic	Housing
300'000	2006-2012	Kyrgyz Republic	Biomass energy
<hr/>			
51'118'500			

Impact of Carbon Revenue on IRR: Key Indicator for Additionality



CDM Project Cycle: Steps towards certified emission reductions (CERs)



Project Design Document

- Main document in the CDM project cycle
- Standardized format:
 - General description of project activity
 - Application of a baseline and monitoring methodology
 - Baseline selection and application
 - Additionality proof
 - Monitoring methodology and plan
 - Estimation of emission reductions
 - Duration of the project activity / crediting period
 - Environmental impacts
 - Stakeholders comments
- Document template available at <http://cdm.unfccc.int>

Validation

- Independent assessment by Designated Operational Entity (DOE) that project meets criteria of the Kyoto Protocol
- DOE shall :
 - Review the PDD and supporting documentation
 - Conduct site visits
 - Interact with stakeholders
 - Source other relevant additional information from various sources
 - Publish the PDD in the web for 30 days for international stakeholder comments
- A successfully validated project can be submitted to CDM EB for registration. This is done by the DOE directly.

Registration

- Automatic registration of submitted projects unless 3 members of the CDM EB or one of the Parties involved file a request for review within:
 - 4 weeks for small scale project activities
 - 8 weeks for large scale project activities
- Registration fees are payable to the Executive Board by the project participants depending on the quantity of emission reduction.

Crediting Periods

- From when and how long can the project generate emission reductions?
- Duration of crediting periods:
 - Fixed crediting period of up to 10 years, or
 - Renewable crediting periods of up to 7 years (maximum = 3 x 7 years)
- Start of crediting period:
 - The later of (i) CDM registration, and (ii) start of project operation
 - Possibility to claim CERs retroactively for emission reductions achieved since 2000 has expired at the end of 2005

Small-Scale CDM Projects

- Size limits for for small-scale projects:
 - Type 1: Electricity generation from renewable sources, up to 15 MW capacity
 - Type 2: Energy efficiency projects saving, up to 60 GWh p.a.
 - Type 3: Other projects reducing emissions up to 60,000 t CO₂e p.a.
- SSC projects benefit from simplified rules:
 - Simplified PDD
 - 31 approved small-scale baseline methodologies (as per January 2008)
 - Same operational entity (DOE) may undertake validation and verification / certification

Additionality

- **CDM is an incentive to achieve additional emission reductions**
- **CDM is NOT a reward for past or BAU emission reductions**
- **A project activity (and the resulting emission reductions) is additional if it is not the baseline scenario**
 - i.e., the project activity should not occur “anyway”
- **Goal is to make projects happen which without CDM revenues would not be viable.**
- **→ The project developer has to prove that the project is additional!**

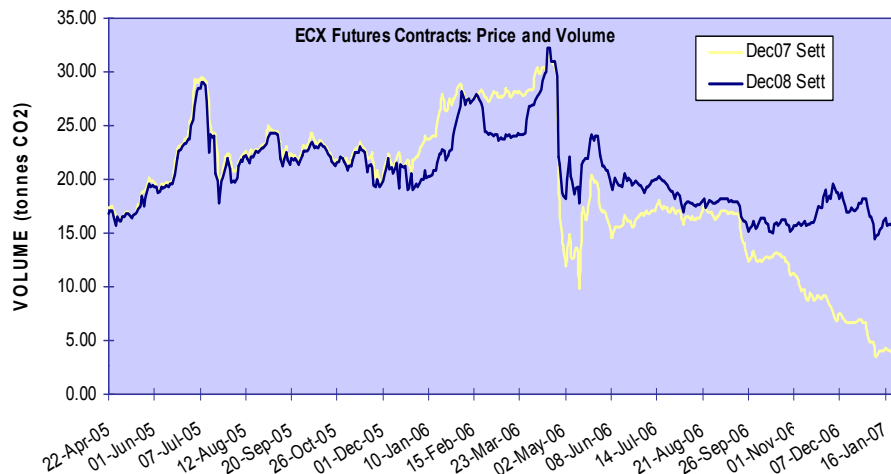
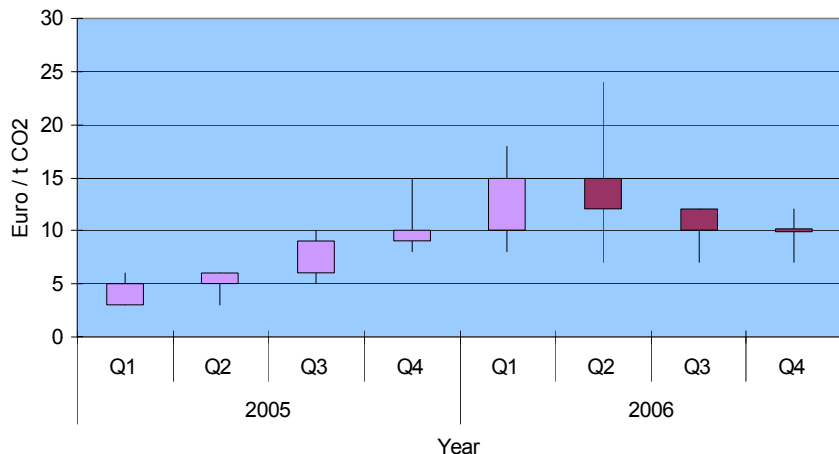
CDM Additionality Tool

Adopted by CDM Executive Board, Ver. 4

- **Step 1: Identification of lawful project alternatives**
 - **Step 2: Investment analysis, or**
 - **Step 3: Barrier analysis**
 - **Step 4: Common practice analysis**
-
- **Small-scale project profit from a simplified additionality proof. Only one convincing barrier, that can be overcome by the CDM benefit, need to be presented.**
 - **The tool is available at: www.unfccc.int**
 - **“Combined tool to identify the baseline scenario and demonstrate additionality” (Version 02.1)1**

CER prices are closely linked to the EUA market

CER Prices by Quarter



-EUA Prices: Most CER forward contracts are linked to EUA prices either directly or indirectly since European buyers price bids on the basis of prevailing EUA price. EUA futures prices from 2008 to 2012 are the main reference given the multi-year nature of these contracts.

-Political decisions: Decisions by the EC on NAPs determine the absolute number of EUAs that a country and installation. These decisions affect both the level of scarcity of EUAs and the demand for CERs. The EC may also limit the total amount of CERs that can be used by countries for compliance.

-CDM Executive Board: Governs the CDM and formally accepts / rejects projects and the issuance of CERs that are generated by such projects. More stringent interpretations of key criteria make it harder for project developers to register their projects and receive issued CERs.

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THANK YOU