

Waste management, renewable energy, PDD

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Pakistan

ID	Title	Host country	Province / State/Region	Status	Type	Methodology	1st period ktCO ₂ e /yr	2020 ktCO ₂	Validator	Credit buyer	PDD Consultant
CDM0743	Catalytic N ₂ O Abatement Project in the Tail Gas of the Nitric Acid Plant of the Pakarab Fertilizer Ltd (PVT) in Multan	Pakistan	Punjab	Registered	N ₂ O	AM28	1050	14398	TÜV-SÜD	Japan (Mitsubishi)	Climate Experts
CDM1421	The 84 MW New Bong Escape Hydropower Project	Pakistan	Azad Kashmir	Registered	Hydro	ACM2	219	2246	DNV	n.a.	Environmental Solutions
CDM1912	Cattle Waste Management, Landhi Cattle Colony, Karachi	Pakistan	Sindh	At Validation	Biogas	ACM6+ACM10	1458	18604	TÜV-SÜD	New Zealand (Empower)	Empower consultants
CDM2880	Community-Based Renewable Energy Development in the Northern Areas and Chitral (NAC)	Pakistan	North-West Frontier Province	At Validation	Hydro	AMS-I.A.	77	998	DNV	Norway (Government of Norway)	Winrock
CDM3106	Gul Ahmed Combined Cycle Gas Turbine Project	Pakistan	Sindh	At Validation	Fossil fuel switch	AMS-II.D.	35	451	BV Cert	United K. (EcoSecurities)	EcoSecurities
CDM3222	Construction of additional cooling tower cells at AES Lal Pir (Pvt.) Ltd. Muzaffar Garh	Pakistan	Punjab	At Validation	EE supply side	AMS-II.B.	10	95	SGS	n.a.	AES
CDM3236	Switching of fossil fuel from Heavy Fuel Oil to Natural Gas by replacing Heavy Fuel Oil Engines (5.86 MW*4) with Gas Engine (16.4 MW) at Maple Leaf Cement Factory Limited, Iskanderabad	Pakistan	Punjab	At Validation	Fossil fuel switch	AMS-III.B.	23	226	SGS	Switzerland (First Climate)	First Climate, Carbon Services Pakistan
CDM3389	Fuel Switch and energy efficiency project at PWML	Pakistan	Punjab	At Validation	Fossil fuel switch	AMS-III.B.	17	167	SGS	n.a.	Prosperity Weaving Mills
CDM3439	Almoiz Bagasse Cogeneration Project	Pakistan	North-West Frontier Province	At Validation	Biomass energy	ACM2+ACM6	32	387	DNV	United K. (Econergy)	Econergy, Carbon Services Pakistan
CDM3683	Pakarab Fertiliser Co-generation Power Project	Pakistan	Punjab	At Validation	EE own generation	AM14	108	1293	TÜV-SÜD	Germany (Fichtner)	Fichtner
CDM4450	CI Polyester Co-generation Project	Pakistan	Punjab	At Validation	EE own generation	AMS-II.D.	19	192	TÜV-SÜD	Switzerland (First Climate)	First Climate, Carbon Services Pakistan
CDM4452	Biogas-based Cogeneration Project at Shakarganj Mills Ltd., Jhang	Pakistan	Punjab	At Validation	Biogas	AMS-I.C.	28	280	TÜV-SÜD	Switzerland (First Climate)	First Climate, Carbon Services Pakistan

Pakistan

- **Grid emission factor**
 - New Bong Hydro project
 - 0.4659 tCO₂/MWh
 - Based on combined margin (CM) method
 - *Operating margin* (OM), operation of current and future plants
 - *Build margin* (BM), building of new facilities
 - Emissions CM = (emissions OM + emissions BM) / 2
 - Pakistan:
 - Simple OM method:
 - » Based on analysis 2003-05 on Karachi and national grid: 0.6279
 - BM
 - » Based on the five most recently built plants: 0.3040

Approved methodologies

- Methane, examples

Number	Name	AM tools	Reg
ACM 0010 (v5, 09/08)	Consolidated methodology for GHG emission reductions from manure management systems	1 3 4 6 7	51
ACM 0014 (v3, 02/09)	Mitigation of greenhouse gas emissions from treatment of industrial wastewater	1 3 5 6 7	9
AMS III.D (v14, 03/07)	Methane recovery in animal manure management systems		101
AMS III.H (v10, 10/08)	Methane recovery in wastewater treatment		14
AMS III.I (v7, 10/08)	Avoidance of methane production in wastewater treatment through replacement of anaerobic lagoons by aerobic systems		4

Approved methodologies

- Landfill gas

Number	Name	AM tools	Reg
ACM 0001 (v10, 02/09)	Consolidated baseline and monitoring methodology for landfill gas project activities	1 2 3 4 5 7	86
AMS III.G (v6, 03/08)	Landfill methane recovery		3

- Composting

Number	Name	AM tools	Reg
AM 0025 (v10, 11/07)	Avoided emissions from organic waste through alternative waste treatment processes	1 4 6 7	6
AM 0039 (v2, 11/07)	Methane emissions reduction from organic waste water and bioorganic solid waste using co-composting	1 4	1
AMS III.F (v6, 08/08)	Avoidance of methane emissions through controlled biological treatment of biomass		7

Approved methodologies

- Other methane

Number	Name	AM tools	Reg
AMS III.R (v1, 10/07)	Methane recovery in agricultural activities at household/small farm level		0

Other methodologies for charcoal, coal-bed methane, mining

Approved methodologies

- Renewable energy

Number	Name	AM tools	Reg
ACM 0002 (v9, 02/09)	Consolidated baseline methodology for grid-connected electricity generation from renewable sources	1 3 7	246
AM S I.A (v13, 10/08)	Electricity generation by the user		8
AMS I.B (v10, 08/07)	Mechanical energy for the user with or without electric energy		0
AMS I.C (v13, 03/08)	Thermal energy for the user with or without energy		54
AMS I.D (v13, 12/07)	Grid connected renewable electricity generation		350

Approved methodologies

- Biomass

Number	Name	AM tools	Reg
ACM 0006 (v7, 02/09)	Consolidated baseline methodology for electricity generation from biomass residues	2 3 4 5	79
AM 0036 (v2.1, 10/08)	Fuel switch from fossil fuels to biomass residues in boilers for heat generation	1 4	3
AM 0042 (v2, 11/07)	Grid-connected electricity generation using biomass from newly developed dedicated plantations		0
AMS I.E (v1, 02/08)	Switch from non-renewable biomass for thermal application by the user		0
AMS III.E (v15.1, 12/07)	Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment		24

Approved methodologies

- **Other methodologies**
 - Waste gas and heat utilization
 - Switching fossil fuels
 - Energy efficiency (supply side)
 - Energy efficiency (demand side)
 - Biofuels
 - Transportation
 - Cement
 - Material use
 - Coal-bed methane
 - Natural gas leak reduction
 - Charcoal production
 - N₂O; HFCs, PFCs and SF₆
 - Afforestation and reforestation

PDD, tips and tricks

- **Baseline methodology**

- Use approved methodologies and IPCC guidelines and emission factors to reduce delays and costs
- Get the baseline right first
 - Check approved methodologies and make sure all baseline scenarios have been considered;
 - If sampling is required demonstrate homogeneity within strata
- Calculation
 - Be conservative, but not overly conservative in ER benefits
- Additionality
 - Demonstrate project isn't common practice and isn't most financially attractive

PDD, tips and tricks

- **Additionality**
 - Step 1: Plausible and credible alternatives
 - Include current project but not undertaken as CDM
 - If project is only alternative it is not additional
 - Step 2: Investment analysis
 - Simple cost (if no other revenues than CERs)
 - Investment comparison, use indicators such as NPV / IRR
 - If NPV is positive or IRR project can still be additional
 - Include capital cost, O&M, revenues (incl. fiscal incentives / subsidies), but
 - do not consider carbon revenues in baseline analysis; do not put interest payments in NPV
 - Treat depreciation as a cash flow
 - Benchmark analysis
 - Compare indicators with standard returns in the market

PDD, tips and tricks

- **Additionality**
 - Step 3: Barrier analysis
 - Debt funding not available
 - Difficult access to international capital due to perceived risks
 - Lack of infrastructure; skilled staff not available;
 - Project is not prevailing practice (first of a kind);
 - Institutional barriers, etc
 - Step 4: Common practice
 - Have similar projects been diffused in the country/region?
 - Step 5: Impact of CDM registration
 - Explain how the CDM registration will alleviate the financial or economic hurdles or the identified barriers and thus enable the project to be undertaken.

PDD, tips and tricks

- **PDD writing**
 - Use numbered versions
 - Wording:
 - Use 'language' that was already approved
 - Do not say more than is needed and do not include irrelevant or overly detailed data
 - Fill out every aspects in the template
 - If not applicable, explain so
 - Keep arguments assumptions, emission factors, crediting and starting periods consistent
- **Check examples and comments on cdm.unfccc.int**