Project
CDM Cookstoves [Honduras]

Scenario Assumptions

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Sales, Partner Org 1	-	-	-	-	-	-	-	-			
Sales, Partner Org 2	-	-	-	-	-	-	-	-			
Sales, Partner Org 3	-	-	-	-	-	-	-	-			
Sales, Partner Org 4	-	-	-	-	-		-	-			
Total Annual Sales for All Partners:	-	1	1	1	1	1	1	1			
Total Annual Carbon Volumes (tCO2e):	0	1,193,409	3,359,541	5,091,088	6,326,937	7,067,088	7,386,915	7,472,814			
Overall Annual Carbon Volumes after Leakage (tCO2e):	0	1,133,739	3,191,564	4,836,533	6,010,590	6,713,734	7,017,569	7,099,173			
Index for Sales Numbers	100%										
Program Start Year (operational)	2011										
Program Registration Date (crediting begins)	2012										

Product Age:	Age 0 - 1	Age 1 - 2	Age 2 - 3	Age 3 - 4	Age 4 - 5	Age 5 - 6	Age 6 - 7	Age 7 - 8	Age 8 - 9	Age 9 - 10
Usage Rate at End of Year	90%	70%	50%	30%	10%	2%	0%	0%	0%	0%
Average Usage by Product Age	95.0%	80.0%	60.0%	40.0%	20.0%	6.0%	1.0%	0.0%	0.0%	0.0%
Leakage in ER per year	0.00	59670.47	167977.03	254554.38	316346.84	353354.42	369345.76	373640.68	0.00	0.00

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VARIABLES FOR $ER_y = B_{y,savings} \cdot f_{NRB,y} \cdot NCV_{biomass} \cdot EF_{projected_fuel,y}$ **AND** $B_{y,savings} = B_{old} \cdot (1 - \frac{\eta_{old}}{\eta_{new}})$

	value	units	notes
Non-Renewable Biomass (f_{NRB})	95.8%	Percentage	Study
NCV biomass	0.0156	TJ/tonne	IPCC default
Emissions Factors ($EF_{projected\text{-}fuel}$)	81.6	(ton CO2/TJ) [1]	IPCC default
Traditional equivalent stove - Thermal efficiency (η_{old})	0.10	Percentage	AMS-II.G Default
Improved stove - thermal efficiency (η_{new})	0.26	Percentage	Study
	per HH		
$B_{y,savings}$ (ton wood-equivalent/year)	2,138,909.63		
B_{old} (ton wood-equivalent/year)	3,475,728.16		

Leakage factor	0.95	Applied to B_{old}

Emmision Reductions	per stove/year (ton wood-equivalent/year)	
TOTAL	**2,478,488.83**	Assumes 100% Usage

B old estimated at the ex-ante for residential HH:	3.58	ton wood/HH-year
Estimated average of members per HH:	4.12	people served per stove
Typical amount of people served per commerce/institution:	20	people/day
Typical number of days per year using the stove:	200	days/year
Potential number of commerical & institutional stoves to be deployed in the PoA boundary:	1,000	stoves to be deployed per year across PoA boundary

SSC-CDM METHODOLOGY CAP

Variable	Value	Units
Energy Cap (SSC-CDM Methodology limit)	180	GWh_{th} per annum
Converted Energy Cap (SSC-CDM Methodology limit)	649.82	TJ_{th} per annum

CALCULATED PROJECT VALUES UPON CAP

Energy Generation and Energy Savings (*)	Value	Units	Fuel Type
Energy generation by traditional equivalent stove (B_{old}*$NCV_{biomass}$) in the whole POA	15019.317	GWh_{th}/year	Wood equivalent
Energy generation by improved stove (B_{old}*$NCV_{biomass}$*η_{old}/η_{new}) in the whole POA	5776.660	GWh_{th}/year	Wood equivalent
Energy savings per improved stove (account 100% usage) in the whole POA	9242.656	GWh_{th}/year	Wood equivalent
Stove Installation Cap			
Improved stoves installation cap per year (accounts 100% usage)	**0**	per year	
Emissions Reductions Cap			
Calculated CDM small scale ER limit	**48,268.37**	CERs per year	

Deblunding check: percentage of the type II limit 5134.81 %

Total number of CPAs needed to cover potentialcommercial&institutional market:	25	70	105	131	146	153	155	

Other unit converters

1 terajoule =	0.277 gigawatt hour
1 year =	365 days stoves are used

Simplified Emissions Reductions Calculator

Annual Assumptions	Project Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Partner Org 1		1	1	1	1	1	1	1	-	-	-	-
Partner Org 2		0	0	0	0	0	0	0	0	0	0	
Partner Org 3		0	0	0	0	0	0	0	0	0	0	
Partner Org 4		0	0	0	0	0	0	0	0	0	0	
Total Product Units Sold Per Year		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**-**	**-**	**-**	**-**
Total Annual ER Volumes (tCO2e):		**1,193,409**	**3,359,541**	**5,091,088**	**6,326,937**	**7,067,088**	**7,386,915**	**7,472,814**	**6,291,627**	**4,125,496**	**2,393,949**	**1,158,099**
ERs/Product-Year (weighted by stove sales,	**7,409,566.03**									**5 Year total**	**29,231,569**	
TOTAL IN USE		**1**	**2**	**2**	**3**	**3**	**3**	**3**		**10 year total**	**50,673,553**	

"Pers" Analysis	Product Age: Usage:	Age 0 - 1 95%	Age 1 - 2 80%	Age 2 - 3 60%	Age 3 - 4 40%	Age 4 - 5 20%	Age 5 - 6 6%	Age 6 - 7 1%	Age 7 - 8 0%	Age 8 - 9 0%	Age 9 - 10 0%	Age 10 - 11 0%
Carbon Price	**$12.00**											
Annual Product Carbon Value	**29,741,865.93**	28,254,772.63	23,793,492.74	17,845,119.56	11,896,746.37	5,948,373.19	1,784,511.96	297,418.66	-	-		
Discount Rate	**10%**											
NPV	**$71,736,545.85**											
Installed Product Cost												

Product Units in Use by Age and Year Sold		Average Usage by Age Age 0 - 1	Age 1 - 2	Age 2 - 3	Age 3 - 4	Age 4 - 5	Age 5 - 6	Age 6 - 7	Age 7 - 8	Age 8 - 9	Age 9 - 10	Age 10- 11
Year Sold	**Units Sold**	**95%**	**80%**	**60%**	**40%**	**20%**	**6%**	**1%**	**0%**	**0%**	**0%**	**0%**
2013	1	1	1	1	0	0	0	0	-	-	-	-
2014	1	1	1	1	0	0	0	0	-	-	-	-
2015	1	1	1	1	0	0	0	0	-	-	-	-
2016	1	1	1	1	0	0	0	0	-	-	-	-
2017	1	1	1	1	0	0	0	0	-	-	-	-
2018	1	1	1	1	0	0	0	0	-	-	-	-
2019	1	1	1	1	0	0	0	0	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	-	-	-	-	-	-	-	-
2022	-	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-	-	-	-	-

Product Years Accumulated Yearly	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Year Sold											
2013	0	1	1	0	0	0	0	0	-	-	-
2014		0	1	1	0	0	0	0	0	-	-
2015			0	1	1	0	0	0	0	0	-
2016				0	1	1	0	0	0	0	0
2017					0	1	1	0	0	0	0
2018						0	1	1	0	0	0
2019							0	1	1	0	0
2020								-	-	-	-
2021									-	-	-
2022										-	-
2023											-
Total Product Years Accumulated	0	1	2	3	3	3	3	3	2	1	0

ER Volume Results

CO2e Credits Per Product/Year (does not ac	**2,478,488.83**											
Total Annual ER Volumes (tCO2e):		**1,193,409**	**3,359,541**	**5,091,088**	**6,326,937**	**7,067,088**	**7,386,915**	**7,472,814**	**6,291,627**	**4,125,496**	**2,393,949**	**1,158,099**

5 Year total	**29,231,569**
7 Year total	**42,996,009**
10 year total	**50,673,553**

General Assumptions for Product Year Calculations

Product volume sold each year is divided into four equal batches, sold each quarter.
New product batches come into use on the middle day of each quarter (i.e., Feb 15, May 15, August 15, November 15)

	ERs	Leakage	Overall	Number of CPAs
2013	1,193,409	59,670	1,133,739	25
2014	3,359,541	167,977	3,191,564	70
2015	5,091,088	254,554	4,836,533	105
2016	6,326,937	316,347	6,010,590	131
2017	7,067,088	353,354	6,713,734	146
2018	7,386,915	369,346	7,017,569	153
2019	7,472,814	373,641	7,099,173	155
TOTAL	**37,897,792**	**1,894,890**	**36,002,902**	**785**
AVG	**5,413,970**	**270,699**	**5,143,272**	**112**