



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	Power Generation (20MW) by Utilizing Coke Oven Gas of China Coal and Coke Jiuxin Limited in Lingshi, Shanxi, P.R.China
Reference number of the project activity	1390
Version number of the monitoring report	Version 01
Completion date of the monitoring report	18/04/2013
Registration date of the project activity	17/02/2008
Monitoring period number and duration of this monitoring period	The Fifth Monitoring Period, 25/08/2011-31/12/2012
Project participant(s)	China Coal and Coke Jiuxin Limited (project owner) and Carbon Asset Management Sweden AB (the CER buyer)
Host Party(ies)	People's Republic of China
Sectoral scope(s) and applied methodology(ies)	Category 1: Energy Industries (renewable/non-renewable sources); Consolidated baseline and monitoring methodology for waste gas and/or heat and/or pressure for power generation, ACM0004/Version02 Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002/Version06; Tool for the demonstration and assessment of additionality /Version03.
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	91,466 tCO ₂ e ¹
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	92,375 tCO ₂ e

¹ , It is translated by the annual emission reductions 67,599 tCO₂e estimated in the registered PDD for this monitoring period of sixteen months and seven days. $67,599/12*16+67,599/12/30*7=91,466(\text{tCO}_2\text{e})$

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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The purpose of the project activity is to utilize the excess COG of China Coal and Coke Jiuxin Limited for power generation. The electricity generated by this project will replace the equivalent quantity of electricity from the North China Power Grid which is coal dominated. Therefore, the project activity helps positively in reducing global warming by avoiding the generation of CO₂ which would have been generated if equivalent quantity of electricity would have been taken from the grid.

The project activity utilizes the excess COG through the Internal Combustion Engine & Generator systems for power generation. 40 (35 in use and 5 stand-by) sets of Internal Combustion Engine & Generator systems were installed and the total capacity is 20MW. The generation system includes: the internal combustion engine, the generator, the air filter, the silencer, the auxiliary system, the pressure regulation device and the control panels.

This power generation project started constructing on February 18, 2005, and started commissioning on November 5, 2005. After about two-month commissioning, this power generation project was put into full operation in January 7, 2006. The continued operation periods of this project activity will be 18 years according to FSR. During this monitoring period, all the facilities and equipments were in place and well-functioning.

Total emission reductions achieved in this monitoring period is 92,375tCO₂e.

A.2. Location of project activity

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The project is located in Lingshi county of Jinzhong city which is in the middle area of Shanxi province of the People's Republic of China, and its geographical coordinates are east longitude 111°38'49" and north latitude 36°48'52".

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	China Coal and Coke Jiuxin Limited (project owner)	No
Sweden	Carbon Asset Management Sweden AB (the CER buyer)	No
Switzerland		

A.4. Reference of applied methodology

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1. Consolidated baseline and monitoring methodology for waste gas and/or heat and/or pressure for power generation, ACM0004/Version02;
2. Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002/Version06;
3. Tool for the demonstration and assessment of additionality /Version03.

A.5. Crediting period of project activity

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The crediting period of this project activity was chosen as ten years (Fixed), from the registration date, that is, February 17, 2008, to February 16, 2018.

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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This power generation project had been put into full operation since January 7, 2006, and all the facilities and equipments, including 40 (35 in use and 5 stand-by) sets of Internal Combustion Engine & Generator systems, were in place and well-functioning, and had no change and replacement during this monitoring period.

The actual installed technology, technical process and equipments and their operation are in lines with the information presented in the registered PDD.

There were no events or situations occurred during the monitoring period, which may impacted the applicability of the methodology.

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

>> The monitoring plan implemented by the project owner is in lines with the monitoring plan in the registered PDD, and the applied methodology is also in lines with the approved methodology applied to this CDM project activity. There are no temporary deviations from registered monitoring plan or applied methodology after registration.

B.2.2. Corrections

>> There are no corrections applied to the registered monitoring plan or applied methodology.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

>> There are no permanent changes from registered monitoring plan or applied methodology.

B.2.4. Changes to project design of registered project activity

>> There are no changes to project design of this registered project activity.

B.2.5. Changes to start date of crediting period

>> The crediting period of this project activity started from the registration date, that is, February 17, 2008, and it has not been changed since this CDM project activity registered.

B.2.6. Types of changes specific to afforestation or reforestation project activity

>> This project activity used waste gas for power generation, and it is not belong to the afforestation or reforestation project activity.

SECTION C. Description of monitoring system

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The monitoring system and all relevant monitoring points are shown in the following figure:

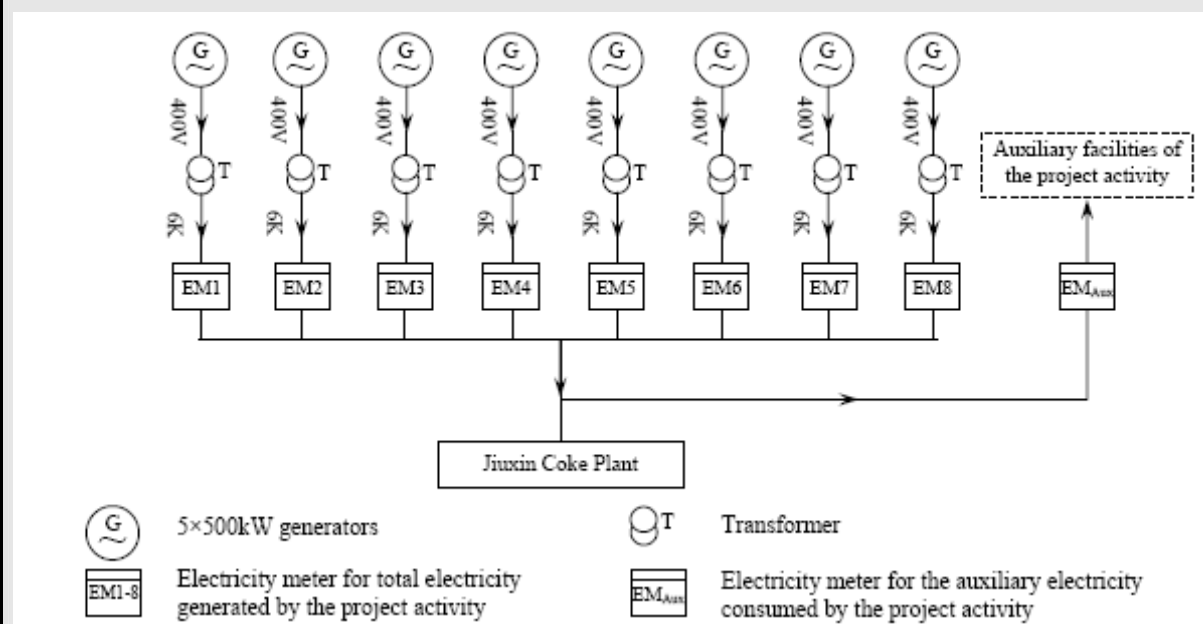


Figure: The monitoring diagram of the project activity

Data Collection Procedures

The total electricity generated and the auxiliary electricity consumed by the project activity was monitored continuously by nine electricity meters installed in the Central Transformer Substation of the power generation station. One distributed control system (DCS) was installed to receive continuously the data signals from all the monitoring meters, and all the data signals received were processed and then archived in a safe database automatically. At the same time, the processed data were used to produce record reports of daily and monthly cumulative quantity of electricity automatically, too. All the data and record reports can be read and showed on the screen if needed.

All these operations are completely automatic and safe, and any accidental loss or manual modification of the recorded data can be avoided absolutely.

The readings of the nine electricity meters were also collected and recorded manually once a day, at the time of 24:00, and the record reports of daily and monthly cumulative quantity of electricity in paper format were produced by the head of the power distribution workshop during the monitoring period.

Calibration

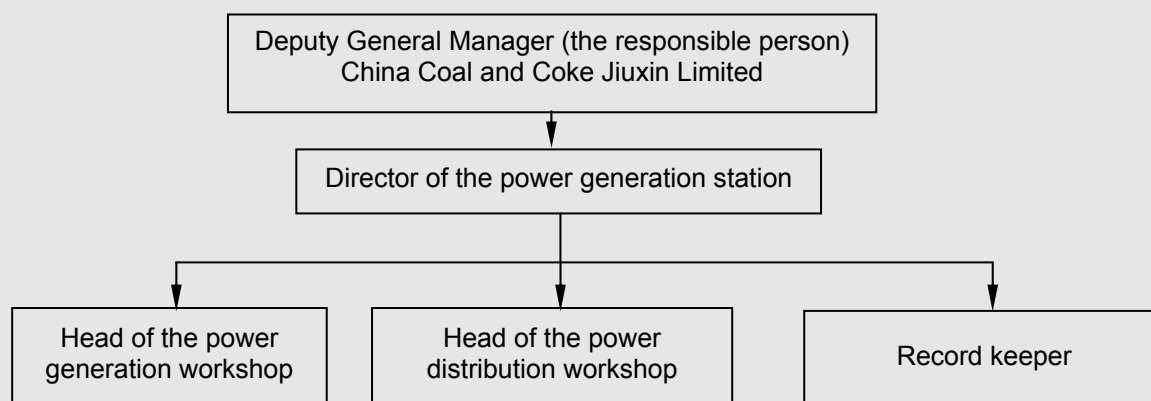
In order to ensure the reliability of the monitoring system and the accuracy of the readings, all meters and devices had been properly calibrated and checked by qualified entity (by Shanxi Power Supply Company Energy Metrological Center on February 12, 2011 and February 7, 2012 respectively) annually according to the requirement from "Stipulated Procedures for Technical Administration of Electricity Metering Equipment (DL/T448-2000)".

Parameter	Meter	Location	S/N	Maximum Error	Calibrated on*	Calibration expiration
EG _{Gen,y}	621(EM1)	the Central Transformer Substation of this power generation station	B906H00024	≤±0.5%	a. February 12, 2011	a. February 11, 2016
	623(EM2)		B906H00025	≤±0.5%		
	625(EM3)		B906H00012	≤±0.5%		
	627(EM4)		B906H00011	≤±0.5%		
	620(EM5)		B906H00001	≤±0.5%	b. February 7, 2012	b. February 6, 2017
	622(EM6)		B906H00029	≤±0.5%		
	624(EM7)		B906H00030	≤±0.5%		
	626(EM8)		B906H00010	≤±0.5%		
EG _{Aux,y}	628(EM _{Aux})		00301616	≤±0.5%		

*Note : All meters were properly calibrated annually by qualified entity, and all the calibration certifications issued by the qualified entity are valid for five years.

Organizational Structure

China Coal and Coke Jiuxin Limited established a CDM project management office with responsibilities for all project related activities including project management, contact with CDM EB and DOE as well as Quality Assurance and Quality Control of the related data, documents and reports. Staff of the CDM project management office includes the deputy general manager (responsible person), the director of the power generation station, the head of the power generation workshop, the head of the power distribution workshop and the person responsible for record keeping and preservation. The following figure outlines the operational and management structure that the project owner implements for the project activity and to monitor emission reductions.



Emergency Procedures

When a device or meter is found to be malfunctioning or registering data outside the acceptable limits of accuracy, the electricity will be estimated as follows:

1. Data of the electricity meters are remotely transmitted to local electric power supply company and any malfunctions of the electricity meter will be detected immediately. The local electric power supply company will be responsible to repair or replace the malfunctioning meter within two working days.
2. The electricity during the two working days will be determined as follows: first, take the reading of the transmitted data to local electric power supply company. If this reading is obviously unreasonable, an appropriate and reasonable estimation method will be designed by local electric power supply company. Evidence will be provided to DOE for the verification to show the estimation is reasonable and conservative.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

(Copy this table for each piece of data and parameter.)

Data / Parameter:	EF_y
Unit:	tCO ₂ /MWh
Description:	CO ₂ baseline emission factor of the North China Power Grid
Source of data:	Data published by China DNA on http://cdm.ccchina.gov.cn
Value(s) applied:	0.9826
Purpose of data:	Used for baseline emission calculations
Additional comment:	Low uncertainty

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter:	$EG_{Gen,y}$
Unit:	MWh
Description:	Total electricity generated by the project activity during the year y

Measured/ Calculated / Default:	Measured
Source of data:	Electricity meters
Value(s) of monitored parameter:	103189.051
Monitoring equipment:	<p>Eight electricity meters were installed with serial numbers as B906H00001, B906H00010, B906H00011, B906H00012, B906H00024, B906H00025, B906H00029, B906H00030 respectively.</p> <p>The common information shared by all the eight electricity meters are as follows:</p> <p>Type: DSSD666</p> <p>Accuracy class: 0.5S</p> <p>Calibration frequency: Once a year</p> <p>Date of calibration: February 12, 2011 and February 7, 2012, by Shanxi Power Supply Company Energy Metrological Center</p> <p>Validity: Yes</p>
Measuring/ Reading/ Recording frequency:	The readings of the electricity meters were monitored continuously and the data were collected and daily and monthly recorded. The electronic record reports of daily and monthly cumulative quantity of electricity were archived in the DCS of the power generation station, and the daily and monthly record reports in a paper format were archived in the power generation station, too. All the data would be preserved during and two years after the crediting period.
Calculation method (if applicable):	/
QA/QC procedures:	The electricity meters were subject to a regular maintenance and calibration by qualified entities annually in accordance with relevant national regulations and standards.
Purpose of data:	Used for baseline calculation
Additional comment:	/
Data / Parameter:	$EG_{Aux,y}$
Unit:	MWh
Description:	The auxiliary electricity consumed by the project activity
Measured/ Calculated / Default:	Measured
Source of data:	Electricity meter
Value(s) of monitored parameter:	9177.633
Monitoring equipment:	<p>Type: DSSD666</p> <p>Accuracy class: 0.5S</p> <p>Serial number: 00301616</p> <p>Calibration frequency: Once a year</p> <p>Date of calibration: February 12, 2011 and February 7, 2012, by Shanxi Power Supply Company Energy Metrological Center</p> <p>Validity: Yes</p>
Measuring/ Reading/ Recording frequency:	The readings of the electricity meter were monitored continuously and the data were collected and daily and monthly recorded. The electronic record reports of daily and monthly cumulative quantity of electricity were archived in the DCS of the power generation station, and the daily and monthly record reports in a paper format were archived in the power generation station, too. All the data would be preserved during and two years after the crediting period.
Calculation method (if applicable):	/
QA/QC procedures:	The electricity meter was subject to a regular maintenance and calibration by qualified entities annually in accordance with relevant national regulations and standards.
Purpose of data:	Used for baseline calculation

Additional comment:	/
Data / Parameter:	EG _y
Unit:	MWh
Description:	Net quantity of electricity supplied by the project activity during the year y
Measured/ Calculated / Default:	Calculated
Source of data:	Calculated from EG _{Gen,y} and EG _{Aux,y}
Value(s) of monitored parameter:	94011.418
Monitoring equipment:	Calculated parameter.
Measuring/ Reading/ Recording frequency:	/
Calculation method (if applicable):	EG _y = EG _{Gen,y} - EG _{Aux,y}
QA/QC procedures:	This data is calculated from EG _{Gen,y} and EG _{Aux,y} , therefore the QA/QC procedure applied to EG _{Gen,y} and EG _{Aux,y} also could be applied to EG _y .
Purpose of data:	Used for baseline calculation
Additional comment:	/

D.3. Implementation of sampling plan

>>According to the ACM0004/Version 02 adopted by the registered CDM-PDD of this project activity, no sampling plan needed.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

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According to the applicable methodologies, the baseline emissions achieved by this project activity for this monitoring period are calculated as follows:

$$BE_y = EG_y \times EF_y = (EG_{Gen,y} - EG_{Aux,y}) \times EF_y$$

Where:

EG_y is the net quantity of electric power supplied by the project activity during the year y in MWh;

EF_y is CO₂ baseline emission factor for the grid electricity displaced due to the project activity during the year y (tCO₂/MWh) ;

EG_{Gen,y} is the total electricity generated by the project activity during the year y in MWh;

EG_{Aux,y} is the auxiliary electricity consumed by the project activity during the year y in MWh.

EG_{Gen,y} and EG_{Aux,y} of this power generation project were monitored continuously and archived by paper format as well as DCS. As the qualified staff who took the responsibility for manual recording could not record the readings at the time as precise as DCS did, therefore, slight differences exist between DCS recording and manual recording in certain months. In order to be conservative, the smaller values of power generated and larger values of auxiliary power consumed were adopted for calculation of the net power supplied and its corresponding emission reductions. All the records in paper format and DCS will be delivered to DOE for verification.

Total baseline emissions (for details see attached table):

$$BE_y = EG_y \times EF_y = (EG_{Gen,y} - EG_{Aux,y}) \times EF_y$$

	EG _{Gen,y} (MWh)	EG _{Aux,y} (MWh)	EG _y (MWh)	EF _y (tCO ₂ e/MWh)	BE _y (tCO ₂ e)
Total (August 25, 2011 to December 31, 2012)	103189.052	9177.633	94011.418	0.9826	92,375

E.2. Calculation of project emissions or actual net GHG removals by sinks

>> During the calculation of baseline emissions, we assumed EG_y as the net quantity of electric power

the annual self-power utilization of the project activity. So, we can say, there are no project emissions in this project activity, which is in lines with the methodology of ACM0004 /Version02

E.3. Calculation of leakage

>> According to the applicable methodologies and registered CDM-PDD, no leakage is considered for this project activity.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Total baseline emissions:

$$BE_y = EG_y \times EF_y = (EG_{Gen,y} - EG_{Aux,y}) \times EF_y$$

$$= (103189.052 \text{ MWh} - 9177.633 \text{ MWh}) \times 0.9826 \text{ tCO}_2\text{e/MWh} = 92,375 \text{ tCO}_2\text{e}$$

Total project emissions(PE_y):

The project emission is zero.

Total leakage(L_y):

No leakage is considered.

Total emission reductions:

$$ER_y = BE_y - PE_y - L_y$$

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
Total	92,375	0	0	92,375

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO ₂ e)	91,466 tCO ₂ e	92,375tCO ₂ e

As shown above, the actual emission reductions in this monitoring period (August 25, 2011 to December 31, 2012) are 92,375tCO₂e. The annual emission reductions of the project activity was estimated to be 67,599 tCO₂e in the registered CDM-PDD, and it can be translated to be 91,466 tCO₂e in this monitoring period of sixteen months and seven days, which is less than the actual emission reductions achieved.

E.6. Remarks on difference from estimated value in registered PDD

>> The actual emission reductions hereby claimed are 0.99% larger than estimated for this monitoring period (August 25, 2011 to December 31, 2012) as to the registered PDD, which are in a reasonable range.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
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Emission reductions or GHG removals by sinks (t CO ₂ e)	92,375tCO ₂ e	N/A	
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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: issuance Keywords: monitoring report, performance monitoring		

Attached table

Period (from the first day at 0:00 to the last day at 24:00 of each period.)	Power Generation(MWh)									Self-consumption	Net Power Supply	baseline emission factor	Baseline Emissions
	Generator Group								EG _{Gen,y} (MWh)	EG _{Aux,y} (MWh)	EG _y (MWh)	EF _y (tCO ₂ e/MWh)	BE _y (tCO ₂ e)
	EM5(620)	EM1 (621)	EM6(622)	EM2(623)	EM7(624)	EM3(625)	EM8(626)	EM4(627)	B= EM1+...+ EM 8	EM _{Aux} (628)	D=B- EM _{Aux}	E	F=D*E
25/08/11-24/09/11	884.784	880.322	1045.632	961.486	1007.709	784.317	806.784	888.145	7259.179	555.489	6703.690	0.9826	6587.046
25/09/11-24/10/11	914.784	832.847	938.161	740.447	939.455	730.800	820.463	880.655	6797.612	578.352	6219.260		6111.045
25/10/11-24/11/11	954.530	905.137	960.478	842.977	779.044	508.322	952.847	968.302	6871.637	593.088	6278.549		6169.302
25/11/11-24/12/11	858.047	822.816	971.090	897.745	775.580	503.808	913.875	912.769	6655.730	532.368	6123.362		6016.816
25/12/11-24/01/12	802.655	767.855	980.976	943.153	915.600	536.109	933.839	903.314	6783.501	553.824	6229.677		6121.281
25/01/12-24/02/12	915.506	671.184	979.917	899.616	798.052	575.522	944.063	910.176	6694.036	555.312	6138.724		6031.910
25/02/12-24/03/12	898.032	646.416	840.577	802.031	723.933	534.863	880.945	775.392	6102.189	592.272	5509.917		5414.044
25/03/12-24/04/12	932.545	617.232	913.106	812.494	762.675	528.290	931.008	853.870	6351.220	597.936	5753.284		5653.177
25/04/12-24/05/12	855.117	634.847	804.671	685.345	725.517	684.910	778.322	718.847	5887.576	540.432	5347.144		5254.104
25/05/12-24/06/12	908.976	755.808	631.776	610.514	779.667	655.106	839.232	941.522	6122.601	589.680	5532.921		5436.648
25/06/12-24/07/12	832.129	717.216	682.847	709.824	653.133	642.478	911.424	918.384	6067.435	540.624	5526.811		5430.644
25/07/12-24/08/12	757.533	808.945	584.067	820.078	710.545	559.631	908.686	868.701	6018.186	567.744	5450.442		5355.604
25/08/12-24/09/12	727.584	680.691	496.702	761.231	647.906	461.522	856.753	839.475	5471.864	548.880	4922.984		4837.324
25/09/12-24/10/12	1007.858	778.766	583.504	739.682	960.878	594.464	855.824	814.063	6335.039	597.312	5737.727		5637.891
25/10/12-24/11/12	873.794	663.728	599.649	756.193	920.094	611.728	869.007	775.168	6069.361	564.384	5504.977		5409.190
25/11/12-24/12/12	729.548	564.768	871.486	706.847	839.475	664.177	922.031	917.424	6215.756	537.648	5678.108		5579.309
25/12/12-31/12/12	167.761	154.322	210.239	197.855	172.078	169.101	208.660	206.114	1486.130	132.288	1353.842		1330.285
Total									103189.052	9177.633	94011.419		92375.620