VOLUNTARY EMISSION REDUCTION PROJECT

MONITORING REPORT

KALEALTI 15 MW HYDROPOWER PLANT, TURKEY

Preparation Date:	**15/05/2009**
Monitoring Period:	**30/11/2006 - 31/12/2008**
Monitoring Report Number:	**1**
Document ID:	**KalealtiVCS-MR1-2006_2008-v01**

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Monitoring Report

Title of the Project Activity:	*KALEALTI 15 MW HYDROPOWER PLANT, TURKEY*
Scope:	*Voluntary Emission Reduction Project*
Standard:	*Voluntary Carbon Standard (VCS) 2007.1*
Project Type:	*Small Scale Renewable Energy Project*
Reference:	*Project Design Document*
Period:	*30/11/2006 – 31/12/2008*

Project Background

The *KALEALTI 15 MW HYDROPOWER PLANT, TURKEY* Project is a renewable energy project located in *Turkey*, which is in operation since *November 30th, 2006*. The Project Activity has been validated by the DOE according to the *VCS 2007.1*. Further background on this Project Activity can be found in the PDD and associated Project documents.

This report is the *1st* monitoring report of the Project Activity for the *initial VCU* issuance.

Project Participants

Project Participants of the Project are:

Company Legal Name	**Role**
Tektug Elektrik Uretim A.S.	*Project owner*
Mavi Surdurulebilir Kalkinma Proje ve Danismanlik Hiz. Ltd. Sti.	*Carbon Consultant*

Contact details of project participants can be found in the PDD and associated Project documents.

Monitoring Background

Emission reductions have been calculated in the *Section 4 "GHG Emission Reductions"* of the *VCS* PDD. The methodology used for calculations is the *UNFCCC methodology AMS I.D. Grid connected renewable electricity generation, v.13*. The grid emission factor has been calculated with the *Tool to calculate the emission factor for an electricity system, v1*.

The monitoring has been explained in *the Section 3 "Monitoring"* of the *VCS* PDD. Accordingly, a monitoring spreadsheat has been prepared for annual monitoring purposes. The filled-in spreadsheet has been submitted to the verifying DOE as a separate file and is also attached to the Annex of this report.

There is no remaining open issue to monitor after the completion of Project validation. The crediting period of the Project started on November 30th, 2006.

According to the validated PDD, the following parameters are to be monitored:

- *Net electricity generation of the Project [MWh]*

Monitoring Results

Monitoring Period :

The monitoring period is from *30/11/2006* to *31/12/2008* inclusively.

Emission Reductions:

The Project resulted in the following emission reductions during the monitoring period;

Vintage	**Emission Reductions [tCO_2]**	**Period**
2006	*660*	*30/11/2006 – 31/12/2006*
2007	*21,611*	*01/01/2007 – 31/12/2007*
2008	*22,572*	*01/01/2008 – 31/12/2008*

Presentation of the Monitoring Results:

All monitoring data is available on the spreadsheat "*VCS-Monitoring-Kalealti.xls*" file. This file has multiple worksheets for each monitoring year. The monthly electricity generation and consumption data of the Project are stored in the same worksheets and the emission reductions are calculated with the emission factor calculated in the PDD. As explained in the PDD, the generation and consumption data are acquired from the web portal (PMUM) of the public electricity buyer TEIAS, which are also submitted to the DOE as evidence along with the spreadsheat file.

Calculation Methodology

Emission reductions are calculated based on the following formulae:

1. Emission Reductions = Baseline Emissions – Project Emissions – Leakage

   Project Emissions and Leakage are zero according to the used methodology.

2. Baseline Emissions = Net Electricity Generated * Grid Emission Factor
3. Net Electricity Generated = Gross Electricity Generated – Electricity Consumed

The following calculation steps are applied for calculating the emission reductions;

1. The grid emission factor is taken from the baseline calculations as a constant parameter.
2. Amount of gross electricity generated and gross electricity consumed by the Project are obtained from the public grid operator TEIAS's web portal PMUM.
3. Monthly PMUM data are aggregated in a spreadsheat. As the available data have a breakdown into 3 time periods during day (T1, T2, T3 for peak, normal and low demand periods), the monthly data are stored accordingly.
4. The net electricity generation is found by:
   a. Subtracting monthly gross consumption from the monthly gross generation for each of the daily time periods T1, T2 and T3
   b. Adding up the T1, T2 and T3 net electricity generation breakdowns for each month to obtain the annual net electricity generation.
   c. Multiplying the annual net electricity generation with the grid emission factor.

ANNEX I – Calculation Of Emission Reductions

2006 Emission Reductions

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Project Name:	Kalealti 15 MW HEPP, Turkey
Period start	30.11.2006
Period end	31.12.2006
Data Source	PMUM, http://pmum.teias.gov.tr
Explanation	Please fill in blue cells (copy-paste from PMUM website) and attach printouts of monthly PMUM reports to this summary

	T1	T2	T3	1	T1	T2	T3	2	3 (= 1 - 2)	4	5 (= 3 x 4)
Period	**Gross Energy Generation, GEG**				**Self Consumption, SEC**				**Net Electricity Generation, EG**	**Emission Factor**	**Emission Reductions**
[Month]	**T1 [kWh]**	**T2 [kWh]**	**T3 [kWh]**	**T1+T2+T3 [kWh]**	**T1 [kWh]**	**T2 [kWh]**	**T3 [kWh]**	**T1+T2+T3 [kWh]**	**[kWh]**	**[tCO_2/MWh]**	**[tCO_2]**
January				0				0	0	0.616	0.00
February				0				0	0	0.616	0.00
March				0				0	0	0.616	0.00
April				0				0	0	0.616	0.00
May				0				0	0	0.616	0.00
June				0				0	0	0.616	0.00
July				0				0	0	0.616	0.00
August				0				0	0	0.616	0.00
September				0				0	0	0.616	0.00
October				0				0	0	0.616	0.00
November				0				0	0	0.616	0.00
December	125,500	922,240	52,090	1,099,830	13,170	2,180	12,240	27,590	1,072,240	0.616	660.21
Total	**125,500**	**922,240**	**52,090**	**1,099,830**	**13,170**	**2,180**	**12,240**	**27,590**	**1,072,240**	**0.616**	**660**

2007 Emission Reductions

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Project Name:	Kalealti 15 MW HEPP, Turkey
Period start	01.01.2007
Period end	31.12.2007
Data Source	PMUM, http://pmum.teias.gov.tr
Explanation	Please fill in blue cells (copy-paste from PMUM website) and attach printouts of monthly PMUM reports to this summary

	T1	T2	T3	1	T1	T2	T3	2	3 (= 1 - 2)	4	5 (= 3 x 4)
Period	**Gross Energy Generation, GEG**				**Self Consumption, SEC**				**Net Electricity Generation, EG**	**Emission Factor**	**Emission Reductions**
[Month]	**T1 [kWh]**	**T2 [kWh]**	**T3 [kWh]**	**T1+T2+T3 [kWh]**	**T1 [kWh]**	**T2 [kWh]**	**T3 [kWh]**	**T1+T2+T3 [kWh]**	**[kWh]**	**[tCO_2/MWh]**	**[tCO_2]**
January	499,160	223,380	16,390	738,930	12,950	6,550	13,790	33,290	705,640	0.616	434.48
February	2,680,550	330,440	291,120	3,302,110	4,540	5,330	12,930	22,800	3,279,310	0.616	2,019.18
March	4,876,361	2,018,354	2,203,830	9,098,545	160	260	4,560	4,980	9,093,565	0.616	5,599.20
April	4,465,544	1,260,076	602,785	6,328,405	440	2,970	10,610	14,020	6,314,385	0.616	3,887.97
May	3,650,625	147,642	163,904	3,962,171	2,140	5,020	9,020	16,180	3,945,991	0.616	2,429.67
June	1,790,835	198,955	61,999	2,051,789	4,730	5,550	9,860	20,140	2,031,649	0.616	1,250.95
July	847,132	6,010	5,000	858,142	6,070	6,410	12,100	24,580	833,562	0.616	513.25
August	16,450	20,920	13,780	51,150	17,140	7,520	13,230	37,890	13,260	0.616	8.16
September	41,900	162,720	14,450	219,070	16,410	5,620	12,870	34,900	184,170	0.616	113.40
October	111,638	567,664	55,359	734,661	14,740	2,990	11,710	29,440	705,221	0.616	434.23
November	1,274,074	1,554,167	598,356	3,426,597	8,610	1,130	9,410	19,150	3,407,447	0.616	2,098.07
December	1,915,776	1,838,775	844,339	4,598,890	7,150	360	8,090	15,600	4,583,290	0.616	2,822.08
Total	**22,170,045**	**8,329,103**	**4,871,312**	**35,370,460**	**95,080**	**49,710**	**128,180**	**272,970**	**35,097,490**	**0.616**	**21,611**

2008 Emission Reductions

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Project Name:	Kalealti 15 MW HEPP, Turkey
Period start	01.01.2008
Period end	31.12.2008
Data Source	PMUM, http://pmum.teias.gov.tr
Explanation	Please fill in blue cells (copy-paste from PMUM website) and attach printouts of monthly PMUM reports to this summary

	T1	T2	T3	1	T1	T2	T3	2	3 (= 1 - 2)	4	5 (= 3 x 4)
Period	**Gross Energy Generation, GEG**				**Self Consumption, SEC**				**Net Electricity Generation, EG**	**Emission Factor**	**Emission Reductions**
[Month]	**T1 [kWh]**	**T2 [kWh]**	**T3 [kWh]**	**T1+T2+T3 [kWh]**	**T1 [kWh]**	**T2 [kWh]**	**T3 [kWh]**	**T1+T2+T3 [kWh]**	**[kWh]**	**[tCO_2/MWh]**	**[tCO_2]**
January	161,796	1,882,805	9,140	2,053,741	16,340	1,010	13,900	31,250	2,022,491	0.616	1,245.31
February	985,450	1,841,206	264,343	3,090,999	11,070	770	11,170	23,010	3,067,989	0.616	1,889.06
March	4,984,514	2,287,135	3,449,954	10,721,603	70	30	450	550	10,721,053	0.616	6,601.29
April	4,406,507	2,209,152	2,286,156	8,901,815	680	0	2,770	3,450	8,898,365	0.616	5,479.01
May	1,147,143	2,097,037	100,938	3,345,118	9,470	90	9,970	19,530	3,325,588	0.616	2,047.67
June	3,560	1,139,394	10,580	1,153,534	11,860	430	10,050	22,340	1,131,194	0.616	696.51
July	4,310	344,097	324,986	673,393	13,700	820	5,460	19,980	653,413	0.616	402.33
August	5,450	235,170	230,618	471,238	15,030	2,740	7,280	25,050	446,188	0.616	274.73
September	17,520	290,438	137,606	445,564	13,610	2,460	7,990	24,060	421,504	0.616	259.53
October	35,690	704,990	3,640	744,320	12,570	80	10,480	23,130	721,190	0.616	444.06
November	1,016,134	933,894	600,146	2,550,174	9,970	1,540	8,370	19,880	2,530,294	0.616	1,557.98
December	613,958	2,126,991	2,120	2,743,069	12,210	10	11,520	23,740	2,719,329	0.616	1,674.38
Total	**13,382,032**	**16,092,309**	**7,420,227**	**36,894,568**	**126,580**	**9,980**	**99,410**	**235,970**	**36,658,598**	**0.616**	**22,572**