

VOLUNTARY EMISSION REDUCTION PROJECT



MONITORING REPORT

KARGILIK 24 MW HYDROPOWER PLANT, TURKEY

Preparation Date:	15/05/2009
Monitoring Period:	28/03/2006 - 31/12/2008
Monitoring Report Number:	1
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Monitoring Report

Title of the Project Activity: *KARGILIK 24 MW HYDROPOWER PLANT, TURKEY*
Scope: *Voluntary Emission Reduction Project*
Standard: *Voluntary Carbon Standard (VCS) 2007.1*
Project Type: *Large Scale Renewable Energy Project*
Reference: *Project Design Document*
Period: *28/03/2006 – 31/12/2008*

Project Background

The *KARGILIK 24 MW HYDROPOWER PLANT, TURKEY* Project is a renewable energy project located in *Turkey*. 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
<i>Tektug Elektrik Uretim A.S.</i>	<i>Project owner</i>
<i>Mavi Sürdürülebilir Kalkınma Proje ve Danışmanlık Hiz. Ltd. Sti.</i>	<i>Carbon Consultant</i>

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 ACM0002, Consolidated Methodology for Grid-Connected Electricity Generation from Renewable Sources*. The grid emission factor has been calculated with the *Tool to calculate the emission factor for an electricity system*.

The monitoring has been explained in the *Section 3 “Monitoring”* of the VCS PDD. Accordingly, a monitoring spreadsheet 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 March 28th, 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 28/03/2006 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	22,827	28/03/2006 – 31/12/2006
2007	27,866	01/01/2007 – 31/12/2007
2008	34,556	01/01/2008 – 31/12/2008

Presentation of the Monitoring Results:

All monitoring data is available on the spreadsheet “*VCS-Monitoring-Kargilik.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 spreadsheet 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 spreadsheet. 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.

2006 Emission Reductions

KargilikVCS-MR1-2006_2008-v01

2007 Emission Reductions



Project Name: Kargilik 24 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	1,329,100	581,000	12,000	1,922,100	8,300	4,700	9,500	22,500	1,899,600	0.616	1,169.64
February	3,361,400	699,200	290,000	4,350,600	1,800	2,700	7,300	11,800	4,338,800	0.616	2,671.54
March	5,921,860	2,028,452	2,470,482	10,420,794	700	1,500	3,700	5,900	10,414,894	0.616	6,412.78
April	3,566,547	2,196,346	538,178	6,301,071	500	300	6,900	7,700	6,293,371	0.616	3,875.03
May	4,410,801	182,395	110,999	4,704,195	600	4,100	6,600	11,300	4,692,895	0.616	2,889.56
June	2,603,686	452,972	246,596	3,303,254	2,200	3,200	6,800	12,200	3,291,054	0.616	2,026.41
July	846,064	703,046	409,689	1,958,799	4,600	400	4,700	9,700	1,949,099	0.616	1,200.12
August	828,965	348,287	489,883	1,667,135	4,800	2,600	4,000	11,400	1,655,735	0.616	1,019.49
September	432,989	196,295	236,895	866,179	6,700	3,600	5,400	15,700	850,479	0.616	523.67
October	222,298	1,127,461	100,599	1,450,358	7,800	700	6,800	15,300	1,435,058	0.616	883.61
November	438,988	1,847,765	149,698	2,436,451	8,300	200	7,000	15,500	2,420,951	0.616	1,490.66
December	2,588,543	2,524,982	913,443	6,026,968	5,100	100	7,100	12,300	6,014,668	0.616	3,703.42
Total	26,551,241	12,888,201	5,968,462	45,407,904	51,400	24,100	75,800	151,300	45,256,604	0.616	27,866

2008 Emission Reductions



Project Name: Kargilik 24 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	262,693	2,824,230	26,900	3,113,823	10,700	200	9,200	20,100	3,093,723	0.616	1,904.90
February	1,553,244	2,767,007	376,390	4,696,641	6,500	200	7,200	13,900	4,682,741	0.616	2,883.31
March	6,824,089	3,173,801	3,976,821	13,974,711	200	0	1,700	1,900	13,972,811	0.616	8,603.50
April	5,876,731	2,995,388	2,613,612	11,485,731	1,400	200	3,800	5,400	11,480,331	0.616	7,068.80
May	2,581,467	3,067,572	155,398	5,804,437	6,500	0	6,600	13,100	5,791,337	0.616	3,565.91
June	649,077	2,184,262	175,797	3,009,136	6,700	1,000	5,600	13,300	2,995,836	0.616	1,844.63
July	794,668	638,054	487,584	1,920,306	5,900	1,100	4,400	11,400	1,908,906	0.616	1,175.37
August	673,375	406,572	528,673	1,608,620	7,100	2,400	4,400	13,900	1,594,720	0.616	981.92
September	577,276	712,620	378,187	1,668,083	6,500	1,700	4,900	13,100	1,654,983	0.616	1,019.03
October	41,900	1,732,361	109,599	1,883,860	8,600	400	6,800	15,800	1,868,060	0.616	1,150.22
November	1,012,739	1,623,340	529,480	3,165,559	8,300	1,300	6,700	16,300	3,149,259	0.616	1,939.10
December	964,947	2,778,851	204,996	3,948,794	9,800	800	8,400	19,000	3,929,794	0.616	2,419.70
Total	21,812,206	24,904,058	9,563,437	56,279,701	78,200	9,300	69,700	157,200	56,122,501	0.616	34,556