

KINIK WIND POWER PLANT VALIDATION REPORT



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Summary:

Bureau Veritas Certification has made the validation of "Kınık Wind Power Plant" of "Esinti Enerji Üretim Tic. ve San. A.Ş." located in Kınık District of İzmir province on the basis of UNFCCC criteria for the CDM methodology (ACM0002 Version 17), Voluntary Carbon Standard (VCS) v.3.6, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

Kınık Wind Power Plant is owned by "Esinti Enerji Üretim Tic. ve San. A.Ş.". The project type is wind power plant. The project purpose is supplying electricity generation to the Turkish National Grid by generating electricity from renewable sources. The project total capacity is 50 MWe which is confirmed through the Generation License dd.08/03/2012. The power generation is achieved by 17 wind turbines 3.2 MWm and 16 wind turbines with a unit capacity of 3 MWe and one wind turbine with a unit capacity of 2 MWe each with 50 MWe total capacity. Project expects to generate and supply 165,000 MWh of electricity per year to the grid and expects to reduce 90,271 tCO₂e per year by replacing non-renewable generation sources in the national grid. The crediting period of the project activity is 05/12/2016 to 04/12/2026, 10 years, to be renewed once.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and internal technical review followed by the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix B. Taking into account this output, Rüzgar Danışmanlık on behalf of the project proponent, revised its project design document, final document being version 3, dated 05/12/2017, resolve the issues that have risen during the interviews and subsequent interactions.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 Version 17 and meets the relevant UNFCCC requirements for the CDM Methodology, Voluntary Carbon Standard (VCS) v.3.6 requirements and the relevant host country criteria.

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1 INTRODUCTION

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC CDM Methodology, Verified Carbon Standard (VCS) v.3.6 requirements, and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meet the stated requirements and identified criteria. Validation is a requirement for all VCS-VCU projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified carbon units (VCUs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules, Verified Carbon Standard (VCS) v.3.6 and associated interpretations.

The validation is not meant to provide any consulting towards Esinti Enerji Üretim Tic. ve San. A.Ş. or Rüzgar Danışmanlık. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of Assurance

The Level of assurance of the validation report is defined as reasonable.

1.4 Summary Description of the Project

The Project is purchase, installation and operation of 17 Wind Turbines by Esinti Enerji Üretim Tic. ve San. A.Ş. The project is a newly built farm which is located in Kınık district of İzmir Province in Turkey, which has geographical coordinates of the wind turbines are confirmed through the EMRA generation license dd. 08/03/2012. The turbines coordinates are confirmed as follows;

T1	530.661	4.322.331	T10	533.119	4.323.676
T2	531.145	4.322.593	T11	533.586	4.323.771
T3	530.376	4.322.892	T12	533.910	4.323.738
T4	530.705	4.322.982	T13	534.226	4.323.864
T5	531.031	4.323.101	T14	534.563	4.324.044
T6	531.355	4.323.341	T15	534.952	4.324.032
T7	531.711	4.323.632	T16	535.285	4.324.086
T8	532.035	4.323.621	T17	535.602	4.324.342
T9	532.813	4.323.503			

The project has totally 17 wind turbines 3.2 MWm and 16 wind turbines with a unit capacity of 3 MWe and one wind turbine with a unit capacity of 2 MWe each. With a total installed capacity of 54,4 MWm/ 50 MWe. The SWT 3.2 turbines are 3 bladed with a horizontal axis. The towers of turbines have a hub height of 79.5m. The diameter of the rotor is 108 m. Project site was visited by the validation team as the installation was finished without T2 turbine. FAR01 has been raised for the T17 turbine coordinates as below;

FAR01

During validation site visit T2 turbine was not installed and constructed. During verification T2 actual location should be check by the DOE.

Turbine capacities are confirmed through the EMRA Generation License 08/03/2012.

The estimated annual electricity generation is 165,000 MWh by the project activity which is constituted of different fuel sources, mainly fossil fuels. The project activity will contribute further dissemination of wind energy and extension of national power generation. The higher the production amount subject to license means higher the capability to trade electricity. Generation estimation has been confirmed through EMRE Generation License.

The project will result in annual emission reductions of 90,271 tCO₂e during the seven years of its first renewable crediting period which is started on 05/12/2016. The total estimated emission reduction value for the crediting period will be 902,710 tCO₂eq/year. The turbines commissioning date references without T2 has been provided to validation team. The commissioning date of T2 expected as 31/12/2017.

The validation team confirms that the estimated PLF of 30.11 % is sourced from the Kınık Generation License. The PLF is calculated as;

$$PLF = 165,000 / (50 * 8760) * 100 = \% 29$$

(PLF = Annual Gen / Installed Cap. x Working Hours) which is complying with the Paragraph 3 (b) of "Guidelines for the Reporting and Validation of Plant Load Factors" version 01.

The project activity with 50 MW qualifies as Type I: Renewable energy project activities with a maximum output capacity are more than 15 MW and therefore the project activity is large scale project activity.

The validation did not reveal any information indicating that the Project can be seen as a diversion of official development assistance (ODA) funding towards the host country.

The processes undertaken by the validation team to validate the accuracy and completeness of the project description include conducting a physical site inspection, sampling, reviewing available designs and feasibility studies, conducting comparison analysis with equivalent projects.

The project comes under Type I – Renewable Energy Project as per Appendix B of the procedures for the CDM project activities. The project won't produce any greenhouse gas (GHG) during operation. The electricity generated by the project can displace part of the power from the fossil fuel-fired plants of Turkey and the annual GHG emission reductions are 90,271 tCO₂e.

The lifetime of the project activity validated as 25 years through the Tool to determine the remaining lifetime of equipment. The crediting period of the project activity is 10 years and 0 months which will be renewed once. The crediting period will be 20 years and 0 months in total.

2 VALIDATION PROCESS

2.1 Method and Criteria

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 09.0 of the Clean Development Mechanism Validation and Verification Standard, issued by CDM Executive Board after its 4/CMP.10 on 15/02/2015. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a GS-VER project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed validation protocol is enclosed in Appendix A to this report.

The validation report underwent an Internal Technical Review (ITR) before requesting publishing of the report for the project activity. The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the verification exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Validation Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized validation report is accepted for further processing.

During the start date of the validation VVM was the current manual for the project activity but it's validity date is finished during the validation. Project activity is also determined through the VVS version 09.0 by the validation team.

2.2 Document Review

The Project Description (VCS-PD) submitted by Rüzgar Danışmanlık and additional background documents related to the project design and baseline, i.e. technical documentation, assessments, reports, national laws and regulations, VCS Project Description Template v.3.3, Approved CDM methodology, VCS v.3.6 requirements, and Kyoto Protocol.

Among the documents sent to DOE, following are commercially sensitive:

- Financial details of the Project
- Consultancy and feasibility reports prepared by 3rd parties
- Spreadsheet of baseline calculations
- All contracts signed with other parties for construction, purchase of electromechanical equipment and turbine manufacture, maintenance and service

This sensitive info is shared with DOE during validation and is in-line with the VCS requirements that are defined for sensitive information.

To address Bureau Veritas Certification corrective action and clarification requests, Rüzgar Danışmanlık revised the VCS-PD and resubmitted it on 05/12/2017.

The validation findings presented in this report relate to the project as described in the VCS-PD.

2.3 Interviews

On 08/11/2017 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Esinti Enerji Üretim Tic. ve San. A.Ş. and Rüzgar Danışmanlık were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics:

Interviewed organization	Interview topics
Esinti Enerji Üretim Tic. ve San. A.Ş. (the Project Owner)	➤ Project background information and CDM consideration. ➤ Project technology, operation and maintenance. ➤ Project approval and implementation status. ➤ Project management and monitoring plan. ➤ Stakeholder consultation process. ➤ Common practice in the area. ➤ Government policies related to the project activity.
Local Stakeholder	➤ Project background in details ➤ Stakeholder comments ➤ Social and environmental impact of the project ➤ GS Sustainability matrix
Rüzgar Danışmanlık (the Consultant)	➤ Applicability of selected methodology. ➤ Baseline determination. ➤ Emission reductions calculation. ➤ Emission reduction monitoring plan.

2.4 Site Inspections

A site visit was performed on 08/11/2017 where representatives of Esinti Enerji Üretim Tic. ve San. A.Ş. and Rüzgar Danışmanlık were interviewed about the project. Implementation of the project was observed on-site.

2.5 Resolution of Findings

During the validation, there were no material discrepancies that were identified.

2.5.1 Forward Action Requests

01 FAR has been raised.

3 VALIDATION FINDINGS

3.1 Project Details

The project is project large scale wind power plant and located in Kınık district of İzmir Province in Turkey. Total installed capacity of the project is 50 MWe. Total capacity of the project is confirmed through the EMRA Generation License dd. 08/03/2012. Expected annual amount of the electricity generation is 165,000 MWh. Annual amount of the electricity generation is confirmed through Generation License dd. 08/03/2012. Project is supplying electricity to the National Power Grid by generating electricity from renewable energy source. The estimated and calculated annual emission reduction is 90,271 tonnes of CO₂e. Emission factor and reduction methods are checked and confirmed by the validation team completely. Project scope is categorized as Type I – Renewable Energy, Energy Industries in accordance with UNFCCC 4/CMP.1, Annex II, Appendix B. The project main purposes are; reducing the GHG gas emissions in Turkey, being environmentally friendly, having social benefits to local life and creating direct and indirect employment opportunities in the region.

Project is being developed by Esinti Enerji Üretim Tic. ve San. A.Ş. The commissioning dates of the turbines have been confirmed as below;

T1,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16,T17 – 05/12/2016

T2 – Expected to commissioned on 31/12/2017

Other entities involved in the project are Rüzgar Danışmanlık handling the carbon consultancy on behalf of the project proponent. Project start date is the commissioning date of the plant. The commissioning date of the project is confirmed as 05/12/2016. The lifetime of the project activity validated for 25 years through the Tool to determine the remaining lifetime of equipment.

The project activity is located in Mediterranean region, İzmir Province. The project coordinates are confirmed through Generation License as below;

T1	530.661	4.322.331	T10	533.119	4.323.676
T2	531.145	4.322.593	T11	533.586	4.323.771
T3	530.376	4.322.892	T12	533.910	4.323.738
T4	530.705	4.322.982	T13	534.226	4.323.864
T5	531.031	4.323.101	T14	534.563	4.324.044
T6	531.355	4.323.341	T15	534.952	4.324.032
T7	531.711	4.323.632	T16	535.285	4.324.086
T8	532.035	4.323.621	T17	535.602	4.324.342
T9	532.813	4.323.503			

The project has totally 17 wind turbines 3.2 MWm and 16 wind turbines with a unit capacity of 3 MWe and one wind turbine with a unit capacity of 2 MWe each. With a total installed capacity of 54,4 MWm/ 50 MWe. The turbines have connected to 154 kV İzmir Havza Transformer Center. The metering has been done at substation before electricity is fed into the grid. The SWT 3.2 turbines are 3 bladed with a horizontal axis. The towers of turbines have a hub height of 79.5m. The diameter of the rotor is 108 m. Technical details are confirmed through Siemens SWT 3.2 Data Sheet.

Mandatory laws are applicable to the project are Environmental Law (Nr. 2872 / 11.08.1983), Electricity Market Law (Nr. 4628 /20.02.2001) and Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy (Nr. 5346 / 18.05.2005).

Sources of the validation have been confirmed through the Generation License dd. 08/03/2012 and Project Introduction File December 2011.

The investment Decision date is confirmed through the Turbine Agreement as 20/04/2015. The agreement is signed between Bayerische Landesbank and Esinti Enerji Üretim Ticaret ve Sanayi A.Ş. on 20/04/2015. Before the loan agreement Turbine contract is signed but that agreement has been changed and cancelled in this period so the loan agreement has been accepted as investment decision date.

On the other hand confirmed project timeline by the validation team can be seen as follows;

Date (DD/MM/YYYY)	Activity
08/03/2012	Licence received from EPDK
23/05/2014	Turbine Contract
20/04/2015	Bank Loan Agreement
17/11/2015	Construction Agreement
26/09/2016	Final Licence Amendment from EPDK
05/12/2016	Start of producing electricity by ETKB Ministry Acceptance
05/12/2016	Commissioning Date of Turbines # 1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17
31/12/2017	T2 Commissioning Date (Expected)

Prior consideration is not essential regarding to VCS rules.

The investment Decision date is confirmed through the Loan Agreement dated 20/04/2015.

Finally all milestones of the project are checked attentively by the validation team through the contracts and agreements. All given events reference documents are stored in DOE data base and completely confirmed by the validation team.

On the other hand it is confirmed that the project is not a grouped project, has not involved any other emission trading programs and other binding limits, has not participated under other GHG programs and has not created another form of environmental credit of renewable energy certificate by the validation team.

The given parameters' references are detailed in the VCS PD. All references are checked and confirmed by the validation team.

The VVB hereby confirms that the project description in VCS-PD (Version 3.0) is accurate and complete in all aspects of the project description.

3.2 Application of Methodology

3.2.1 Title and Reference

Applied methodology is ACM0002, Version 17.0.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources and for additionality, Tool for demonstration and assessment of additionality", Version 07.0.0 for additionality and "Tool to calculate the emission factor for an electricity system" v.6.0.0 for calculation of the emission factor the national grid.

3.2.2 Applicability

The steps taken to assess the relevant information contained in the VCS-PD against each applicability condition are described below.

- Applicability condition 1: The project activity consists of installation of Greenfield power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. This was confirmed through the site observations and EMRA generation license.
- Applicability condition 2: The project activity is the installation of 17 wind turbine generators (WTGs). Hence, meets this criterion. This was confirmed through the site observations and EMRA generation license.
- Applicability condition 3: The project activity does not involve capacity additions, retrofits, rehabilitations or replacements. This was confirmed through the site observations and EMRA generation license.
- Applicability condition 4: The project activity doesn't involve the installation of hydro power plant. This was confirmed through the site observations and EMRA generation license.
- Applicability condition 5: The project activity is installation of a new grid connected wind power project and doesn't involve installation of hydro power plant. This was confirmed through the site observations and EMRA generation license.
- Applicability condition 6: The project activity does not involve switching from fossil fuels to renewable energy sources and does not involve the installation of a biomass fired power plant. This was confirmed through the site observations and EMRA generation license .

- Applicability condition 7: The project is not a retrofit, rehabilitations, replacements or capacity addition; This was confirmed through the site observations and EMRA generation license.

The VVB hereby confirms that the selected baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 17.0.0 and "Tool to calculate the emission factor for an electricity system" (version 06.0) is previously approved by the CDM Executive Board, and is applicable to the project activity, which, complies with all the applicability conditions therein.

3.2.3 Project Boundary

The VVB validated the project boundary by:

- a) Review of System Connection Agreement, Commissioning Records dd. 05/12/2016.
- b) On-site observations and interviews regarding the project site and equipment through a site visit.

The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the national electricity grid.

Based on the above assessment, the VVB hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

3.2.4 Baseline Scenario

The procedure contained in the methodology to identify the most reasonable baseline scenario has been correctly applied. The baseline scenario has been identified, in line with the applied methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 17.0.0, as "Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the 'Tool to calculate the emission factor for an electricity system ver.06' under Section 2.4 and Section 3.1 of VCS-PD v.2.

In line with the requirements of the applied tool, the Simple Operating Margin Emission Factor (EF_{grid,OM simple,y}) has been calculated ex-ante, using TEIAS data for 2013-2015 period which is actual data during the investment decision date.

The operating margin is calculated as **0,629** tCO₂ / MWh. The operating margin calculation is checked and accepted by the validation team through the actual references for the project activity.

For BM factor calculation are calculated for the year 2015 through TEIAS and Ministry and Energy and Natural Resources information.

The Build Margin Emission Factor (EF_{grid,BM,y}) has been determined as **0.3019** tCO₂/MWh and has been found appropriate by the validation team.

In accordance with the methodology of the “Tool to calculate the emission factor for an electricity system”, Version 06; Project participant determined the Combined Margin Emission Factor as **0.5471** tCO₂/MWh and this have been confirmed by the validation team with reviewing all baseline calculation sheet equations and confirming the parameters used for the calculations and their relevant sources. After approval of the Baseline specialist all clarifications and corrective action requests related to Baseline calculations are closed by the validation team.

Based on the above assessment, the VVB hereby confirms that:

- (a) All the assumptions and data used by the project participants are listed in the VCS-PD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the VCS-PD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the VCS-PD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed VCS-VCU project activity.

3.2.5 **Additionality**

As required by the selected methodology, the additionality of the Project has been demonstrated by applying “Tool for the demonstration and assessment of additionality”, Version 07.0.0. Under demonstration of additionality first of all alternative projects have been identified for define the alternative realistic scenarios instead of the project activity.

However consistency with mandatory laws and regulations has been demonstrated. The Investment Analysis and Common Practice Analysis have been done for the project activity. The input values have been confirmed through the feasibility of the project activity and other sectorial data's has been confirmed by the financial specialist through the sectorial knowledge.

On the other hand confirmed project timeline by the validation team can be seen as follows;

Date (DD/MM/YYYY)	Activity
08/03/2012	Licence received from EPDK
23/05/2014	Turbine Contract
20/04/2015	Bank Loan Agreement
17/11/2015	Construction Agreement
26/09/2016	Final Licence Amendment from EPDK
05/12/2016	Start of producing electricity by ETKB Ministry Acceptance
05/12/2016	Commisioning Date of Turbines # 1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17
31/12/2017	T2 Commissioning Date (Expected)

The plausible and credible alternatives to the Project were identified as per “Tool for the demonstration and assessment of additionality”, Version 07.0.0.

(1) Alternative 1: The proposed project activity undertaken without being registered as a VER project activity.

Alternative 1 is not realistic because the equity IRR of the proposed project activity is far below the benchmark IRR.

(2) Alternative 2: Construction of some other renewable energy plant with the same annual power output.

Utilizing solar power or biomass for electricity generation is still at the early stage in Turkey. In addition to this, the PP's knowledge is focused in wind energy and Kinik WPP has license only for wind power investment in the proposed project area. Therefore, other project activities delivering same electricity in the same project area is not realistic.

(3) Alternative 3: Continuation of the current situation (in the situation that Kinik WPP is not built).

This alternative is a realistic and valid scenario. The grid electricity mix contains fossil fuel fired plants which is dominated by natural gas, coal and lignite. Given those facts it would be appropriate to set this scenario as the baseline scenario. Therefore wind power plant projects should be constructed in order to generate clean energy where applicable.

Alternative 1 is not realistic, since the equity IRR of the proposed project activity is far below the benchmark IRR and also other project activities delivering same electricity in the same project area (Alternative 2) is not realistic for Project Participant.

Alternative 3 is described as realistic scenarios. If the Kinik WPP is not built, the same amount of electricity would be generated by the operation of grid-connected power plants and by the addition of new generation sources.

Investment analysis shows that without VER credit income the project is not feasible.

Bureau Veritas Certification considers the listed alternatives to be credible and complete.

Investment Analysis

Analysis method

Project will be receiving revenues from electricity sales to the grid hence it is not eligible for simple cost analysis. The investment comparison analysis is also not applicable for the proposed project activity because the baseline scenario, providing the same annual electricity output by the Turkish National Grid, is not an investment project.

Benchmark

In order to calculate the cost of equity, the approach presented in the paper “Estimating equity Risk Premiums” by Prof. Damodaran is taken.

Expected cost of Equity = Risk free rate (US treasury bond rate) + β * (Equity Risk Premium for USA) + Country Risk Premium

1. *Choice of Risk Free Rate*

The risk free rate has been used as the US treasury bond rate. Taking into account Annex 5: Guidance on the Assessment of Investment Analysis (version 05), the risk free rate of return is based on the long-term average returns of US treasury bonds and is used as **3%**.

2. *Choice of Beta*

Beta is chosen as **1** in accordance with Annex 5: Guidance on the Assessment of Investment Analysis (version 05).

3. *Choice of Country Risk*

One of the simplest and most easily accessible measure of the country risk is the rating assigned to a country's debt by a rating agency. These rating measure default risk but they are affected by many of the factors that drive equity risk. Country Default Spreads and Risk Premiums, by Aswath Damodaran which was lastly updated in 2016 is taken as a reference for country risk premium. Aswath Damodaran is a Professor of Finance at the Stern School of Business at New York University and well known as author of several widely used academic and practitioner texts on Valuation, Corporate Finance and Investment Management.

The country risk premium for Turkey is taken as **3.46%**.

4. *Equity Risk Premium*

As per Annex 5: Guidance on the Assessment of Investment Analysis (version 05), the value of **6.25%** is used for equity risk premium. The equity risk premium is derived from the long-term historical returns on equity in the US market relative to the return of bonds.

As a conservative approach, **12.71 %** is accepted as the benchmark for the proposed project.

Data Source

The input values are taken from Turbine agreement dd. 23/05/2014, loan agreement dd. 20/04/2015, construction agreement dd. 17/11/2015 which signed between companies and Esinti Enerji Üretim Tic. ve San. A.Ş. The validation team confirms that the values used in the PDD and associated annexes are fully consistent with the agreements.

The turbine agreement dd. 23/05/2014 has been provided to the validation team. It is 64% of the total project cost. The agreement signed between Siemens & Esinti Enerji Üretim Tic. ve San. A.Ş.

The project's other investment items as electrical and construction works, contingency charges, exploration, expropriation and grid connection cost) which contain 21% of the total investment are confirmed through the construction agreement and electrical work agreement. The other costs which are %14 of the project activity are confirmed through the sectorial estimations.

Given that the project owners are realizing the project on the factory grounds and with their own sources and the on-going wind measurements, the time period between the Financial Analysis Report and the implementation was found to be acceptable considering the inflation and that the realized figures are comparable and more conservative than the Financial Analysis Report.

Input value

The validation team has reviewed the IRR calculation sheet and cross-checked the major input values using local knowledge as well as sectorial and financial expertise and confirms that:

Item	Value	Units	Source
Total Investment	87,064,000	\$	Turbine Agreement & Construction Agreement
Loan	65	%	Loan Agreement
Equity	35	%	
Production Expenses	5.063.909	\$/year average	Estimation
Installed Capacity	50	MWe	Generation License
Yearly electricity Generation	165,000	MWh/Year	Generation License
Electricity feed in tariff	7.9 (First five years)	\$cent/kWh	Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy
Revenue	9.609.469	\$/year average	Calculated (Yearly Generation has multiplied by tariff)
Corporate tax	20	%	

Indicator Calculation

Based on the input values from the Financial Analysis Report and Loan Agreements that are valid and applicable at the time of investment decision, the equity IRR of the Project without VER revenues is 3.54 %, lower than the benchmark (12,71%), this shows that the Project is not financially attractive in the absence of VER benefits.

The validation team has reviewed the IRR calculation spreadsheet and confirms that the calculation and presentation are consistent with the “Guidelines on the Assessment of Investment Analysis” version 05. The data sources as well as the analysis approach is reliable and in accordance with local accounting regulations or international best practice.

Sensitivity Analysis

Variables including the initial investment cost, that constitute more than 20 % of either total project costs or total project revenues were taken as uncertainty factors for sensitive analysis to determine under what conditions variations in the result would occur, and the likelihood of these condition:

Sensitivity Analysis of the equity IRR with changes in investment cost, production expenses and revenues

Parameter	Value Applied (\$)	Equity IRR	Value Applied (\$)	Equity IRR
Investment Cost	78,357,600(-10%)	5.96 %	95,770,400 (+10%)	1.99 %
Production Expenses (average Yearly)	4,557,518(-10%)	5.41 %	5,570,300 (+10%)	1.78 %
Electricity Generation (Average Yearly)	145,500 (-10%)	0.33 %	181,500 (+10%)	7.03 %
Electricity Price (Average Yearly)	0.0503 (-10%)	1,57 %	0,0705 (+10%)	8.93%

➤ Investment Cost

The variable is determined between 10 % increasing and 10 % decreasing. Even when the cost is reduced by 10%, the equity IRR reached 5.96 % without VER and when the cost is increased by 10% the equity IRR becomes to 1.99 %. The sensitivity analysis on investment cost shows that, when the investment cost decreased 10% the equity IRR exceeds the benchmark but investment of the project finished. The loan agreement and turbine agreement provides that there is not decreasing on investment cost the project activity.

➤ Production Expenses (yearly)

The variable is determined between 10% increasing and 10% decreasing. Even when the operating cost is reduced by 10%, the equity IRR reached 5.41 % without VER and when the cost is increased by 10% the equity IRR becomes to 1.78 %. The sensitivity analysis on production expenses shows that, when the production expenses decreased 10% the equity IRR is still much lower than the benchmark.

➤ Electricity Generation (average yearly)

The variable is determined between %10 increasing and %10 decreasing. Even when the electric generation is increased by 10%, the equity IRR reaches to 7.03 % without VER and when the electric generation is reduced by 10% the equity IRR becomes to 0.33 %. It shows that the equity IRR is still much lower than the benchmark rate by 10% increasing.

➤ Electricity Price (average early)

The variable is determined between %10 increasing and %10 decreasing. Even when the electric generation is increased by 10%, the equity IRR reaches to 8.93 % without VER and when the electric generation is reduced by 10% the equity IRR becomes to 1.57 %. It shows that the equity IRR is still much lower than the benchmark rate by 10% increasing.

The electricity price and electricity generation sensitivity analysis are different because of the use of the renewable energy for electricity generation law. (<http://www.mevzuat.gov.tr/MevzuatMetin/1.5.5346.pdf>). Regarding to law electricity prices are valid for 5 years so in IRR calculation and sensitivity analysis no change was evaluated for 5 years. The difference caused by this 5 year fixed electricity price. Change in both electricity price and generation is not a probable case since electricity prices have a decreasing trend and wind power plants have an obvious volume risk.

The validation team considers that the range of variations is reasonable in the project context. The analysis provided a cross-check on the suitability of the assumptions used in the development of the investment analysis. The conclusion that the project activity is unlikely to be financially/economically attractive is robust to reasonable variations in the critical assumptions.

Bureau Veritas Certification hereby confirms that the underlying assumptions regarding investment analysis are appropriate and the financial calculations are correct.

Barrier Analysis

The validation team confirms that issues that have a direct impact on the financial returns of the project activity are not considered barriers and have been assessed by investment analysis. Barrier analyses have not been used.

Common Practice Analysis

The common practice is confirmed through the "Tool for the demonstration and assessment of additionality", version 7.0.0 and according to the Guidelines on Common Practice version 02.0. The steps of the common practice are validated as follows through the tool and guideline as follows;

Step 1: Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity:

The project capacity is 50 MW. The range for the project activity is between 25 MW and 75 MW according to step 1.

Step 2: Identify similar projects (both CDM and non-CDM) which fulfill all of the following conditions:

- (a) *The projects are located in the applicable geographical area; (Turkey)*
- (b) *The projects apply the same measure as the proposed project activity; (Renewable Energy Projects)*
- (c) *The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity; (Wind Power Plants)*
- (d) *The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant; (N.A.)*
- (e) *The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1; (25 MW – 75 MW)*
- (f) *The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity; (N.A.)*

Step 3: Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all} .

From the list obtained from TEIAS Capacity Projection Report (2013-2017) (Ref-29), it has been understood that there are initially 632 projects. When projects registered as VER projects and projects under validation are excluded, the new list entails 547 projects. Satisfying the steps 2 and 3,

$N_{all} = 1$

Step 4: Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff} .

When both the fuel types of the power plants and the company types are taken into account, the number of companies that apply technologies different than the technology applied in the proposed project activity,

$N_{diff} = 0$

Step 5: Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

$$F = 1 - N_{diff} / N_{all} \\ = 1 - (0/1)$$

Factor F is therefore 1.

$F = 1$ factor and $N_{all} - N_{diff} = 1$ is not greater than 3.

Bureau Veritas Certification hereby confirms that the proposed VCS project activity is not common practice. The calculations are checked and confirmed through the TEIAS Capacity Projection Report (2013-2017).

(<http://www.teias.gov.tr/YayinRapor/APK/projeksiyon/KAPASITEPROJEKSIYONU2013.pdf>)

In conclusion, as demonstrated in accordance with ACM0002 / Version 17, "Tool for the demonstration and assessment of additionality" – Version 07.0.0, the proposed VER project activity is additional.

3.2.6 Quantification of GHG Emission Reductions and Removals

3.2.6.1 Baseline Emissions

The baseline emissions for the project were calculated in line with the applied methodology and the relevant tools ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 17.0.0; "Tool to calculate the emission factor for an electricity system" v.06.0.

EF_{grid,CM} is calculated according to the "Tool to calculate the emission factor for an electricity system" version 06.0. The combined margin emission factor EF_{grid,CM,y} calculated through equation is **0.5471** tCO₂/MWh.

3.2.6.2 Project Emissions

The project emission from solar power plant is zero.

3.2.6.3 Leakage Emissions

According to the methodology, leakage emissions are neglected.

3.2.6.4 Summary of GHG emission reductions or removals

Accordingly the baseline emissions BE_y are calculated as following:

$$BE_y = EG_{BL,y} \cdot EF_{CO_2,grid,y}$$

Where:

BE _y	Baseline emissions in year y (tCO ₂)
EG _{BL,y}	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
EF _{grid,CM,y}	CO ₂ emission factor of the grid in year y (tCO ₂ /MWh)

If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$$EG_{PJ,y} = EG_{facility,y}$$

$$EG_{facility,y} = 165,000 \text{ MWh/year}$$

Therefore, the expected baseline emission for the full year production of the project is:

$$BE_y = 0.5471 \times 165,000 = \mathbf{90,271 \text{ tCO}_2e}$$

According to the methodology, the generic equation for the calculation of emission reduction is:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y	Emission reductions for the year y (tCO ₂)
BE_y	Baseline emissions for the year y (tCO ₂)
PE_y	Project emission for the year y (tCO ₂)
LE_y	Leakage Emission in year y (tCO ₂)

$$ER_y = 90,271 - 0 - 0 = \mathbf{90,271 \text{ tCO}_2}$$

Starting date of the project activity is confirmed as 05/12/2016

Years	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
05.12.2016-31.12.2016	6,430	0	0	6,430
2017	90,271	0	0	90,271
2018	90,271	0	0	90,271
2019	90,271	0	0	90,271
2020	90,271	0	0	90,271
2021	90,271	0	0	90,271
2022	90,271	0	0	90,271
2023	90,271	0	0	90,271
2024	90,271	0	0	90,271
2025	90,271	0	0	90,271
01.01.2026-04.12.2026	83,841	0	0	83,841
Total	902,710	0	0	902,710

Based on the above assessment, the VVB hereby confirms that:

- (a) All assumptions and data used by the project participants are listed in the VCS-PD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PD;
- (c) All values used in the PD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PD.

The formulas and factors used in the calculation of GHG emissions are found to be transparent and correct by the validation team. Statistics related to the national grid were taken from publicly available TEIAS, EMRA sources. All data parameters and their sources, available at validation for the ex-ante calculation of the Combined Margin Emission Factor have been validated by the baseline expert of the validation team to be conservative and appropriate.

3.2.7 Methodology Deviations

There are no methodological deviations applied to the project.

3.2.8 Monitoring Plan

The monitoring plan includes the monitoring of “Electricity Production / EGfacility,y”, the quantity of the net electricity that is delivered to the grid, and this parameter will be the basis for the emission reduction calculations. The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology.

Data and parameters available at validation

The Combined Margin emission factor is calculated ex-ante; the parameters used in the calculation of the emission factor are available at validation. The below table shows the data and parameters that are available at validation

Parameter	Data Unit	Description	Source
$EF_{elec\ i,j,y}$	tCO ₂ /MWh	Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”	As per “Tool to calculate the emission factor for an electricity system”

Data and parameters monitored

Data / Parameter	EG_{facility,y}																			
Data unit	MWh/yr																			
Description	Quantity of net electricity supplied to the grid in year y																			
Source of data	Monthly meter readings records (Remote automatic meter reading system-OSOS)																			
Description of measurement methods and procedures to be applied	The net electricity generation supplied to the grid will be measured continuously by TEAIS meters (both main and spare) and recorded monthly. (Remote automatic meter reading system-OSOS)																			
Frequency of monitoring/recording	The produced and consumed electricity is continuously measured by the meters attached to the power plant. This continuous measurement is recorded on a monthly basis. As a result, net electricity supplied to the grid is calculated.																			
Value applied:	165,000 MWh/year (expected)																			
Monitoring equipment	Continuous measurement and at least monthly recording. (Remote automatic meter reading system-OSOS) The accuracy of meters is given as 0.2 class. Information of the meters are listed as followed: <table border="1"> <thead> <tr> <th></th><th>Electricity Meter (Primary)</th><th>Electricity Meter (Secondary)</th></tr> </thead> <tbody> <tr> <td>Manufacturer</td><td>ITRON</td><td>ITRON</td></tr> <tr> <td>Model</td><td>SL7000</td><td>SL7000</td></tr> <tr> <td>Serial number</td><td>73055353</td><td>73055354</td></tr> <tr> <td>Date of installation</td><td>27/10/2016</td><td>27/10/2016</td></tr> <tr> <td>Date of initial calibration</td><td>29/06/2016</td><td>29/06/2016</td></tr> </tbody> </table>			Electricity Meter (Primary)	Electricity Meter (Secondary)	Manufacturer	ITRON	ITRON	Model	SL7000	SL7000	Serial number	73055353	73055354	Date of installation	27/10/2016	27/10/2016	Date of initial calibration	29/06/2016	29/06/2016
	Electricity Meter (Primary)	Electricity Meter (Secondary)																		
Manufacturer	ITRON	ITRON																		
Model	SL7000	SL7000																		
Serial number	73055353	73055354																		
Date of installation	27/10/2016	27/10/2016																		
Date of initial calibration	29/06/2016	29/06/2016																		
QA/QC procedures to be applied	• Measurements are undertaken using energy meters. • Concerning metering system accuracy, project participants have to comply with relevant national legislation According to b) paragraph of the 9th Article of the Regulation of Metering and Testing of Metering Systems “periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 10 years.” • The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. Data measured by meters will be crosschecked with the PMUM records.																			
Purpose of data	Calculation of emission emissions																			

Calculation method	-
Any Comment	-

Regarding to ACM0002 Version 17, EGfacility,y parameter is the only parameter to be monitored. For the project activity there will be two electricity meters (one main and one reserve) at the substation. The parameter will be measured continuously by TEIAS meters and recorded monthly.

The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and import. The cross check of the parameter will be done with the PMUM records. In addition, the Meter reading records are defined as the data source.

The technical specifications of the power meters should be in line with Measure and Metering Devices Regulation by Ministry of Industry and Trade. In addition, the metering devices are in line with the technical requirements which are set out by the Communiqué for Metering Devices to be used in the Electricity Market.

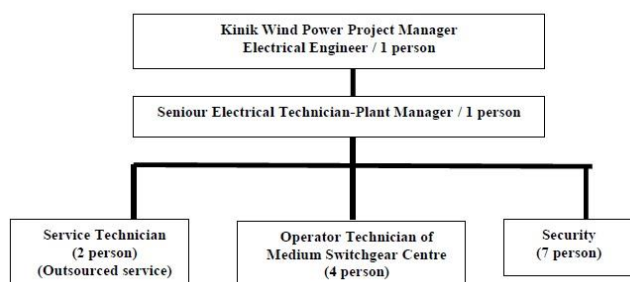
Maintenance and calibration of TEIAS meters will be carried out according to the System Usage Agreement dd. 18/01/2016. The demand letter for the system usage agreement has been provided to the validation team. The meters will be calibrated every year regarding to the instructions of the manufacturer or legal requirements.

The capacity of the transmission line connected is 154 kVA, the accuracy class for power meters have been defined in the Communiqué for Power Meters as 0.2S class. The calibration will be implemented in accordance with the related standard procedures. The periodical maintenance is under the responsibility of TEDAS and has been fixed as once 10 years.

The necessary regulations regarding to electricity generation and metering are checked by the validation team. The monitoring plan of the EGfacility,y parameter is line with the necessary regulations.

The validation team considers that the description of the monitoring plan contains all necessary parameters, that they are described and that the means of monitoring described in the plan complies with the requirements of the methodology including applicable tool(s).

Project manager is the responsible for the implementation of the monitoring plan and preparation of the monitoring report. Operation and Management Diagram can be seen as below;



4 SAFEGUARDS

4.1 No Net Harm

During the site visit, it is concluded that there are no negative impacts of the project activity to the socio-environment topics. Kinik WPP has minimum impact on terrestrial fauna, except from birds, and takes precautionary approach in regard to environmental challenges. Moreover, necessary precautions will be taken in order to minimize the impact of the project on the environment.

4.2 Environmental Impact

The project participants conducted an analysis of the environmental impacts of the proposed project activity, including trans-boundary impacts as a part of the national EIA procedures. The project has EIA Not Required Certificate dd. 15/02/2012 with 1096 decision number. Due to project size and location almost no impact is expected which is found acceptable by BVC after on-site observations and assessment of the project characteristics.

In the Project Site and immediate surrounding area;

- There is not any National Parks, Natural Parks, Natural Reserve Areas or Natural Monuments defined in Article 2 of National Parks Law No 2873 and specified in accordance with Article 3 of same law.
- There is not any Wild Animals Accommodation Area or Wildlife Development Area determined by the Ministry of Environment and Forestry in accordance with the Land Hunting Law No 4915.
- There are not any areas of Cultural Property, Natural Property, Site and Protection Areas and Registered areas as per Article 2 of Law on Conservation of Culture and Natural Property numbered 2863.
- There is not any aquaculture production and reproduction field that is within the scope of Aquaculture Law No 1380.
- There is not any area determined and declared as SPEA (Specially Protected Environment Area) by the Council of Ministers in accordance with the article 9 of Environmental Law No 2872.
- There is not any area specified in the Mining Law No 3213 (5177).
- There is not any Biogenetic Reserve Area or Geothermal Field. There is not any area that is a living environment for the species that are of importance for the scientific researches and/or are or likely to be in danger of extinction and the species that are endemic for our country, biosphere reserve, biotope, biogenetic reserve area, areas with the unique Geological and Geomorphologic Formations.

Bureau Veritas Certification hereby confirms that the project participants have undertaken an analysis of environmental impacts.

4.3 Local Stakeholder Consultation

A live meeting was held on 21/06/2014 in Kinik District of İzmir Province. All local people are informed about meeting in advance by local announcements, invitation posters and newspaper announcement. All invitees respond positively to the project, many of them did not attend to the stakeholder meeting. Some reasons for non presence of stakeholders are: lack of personnel that can attend to the meeting and lack of interest in project activity. During the meeting, representative of local governmental institutions and villagers expressed their support for renewable energy project of Kinik WPP. During the site visit dd.08/11/2017 stakeholder are declared their positive opinions to validation team.

4.4 Public Comments

There were no concerns on the impact of this project activity to sustainable development and environmental. Briefly, the meeting was closed by a general support from participants. On the other side as per the VCS Standard v3.6, requirements for public comment periods for projects (Sections 3.17.5- 3.17.8) are effective from 19 April 2017. Thus this section is not applicable.

5 VALIDATION CONCLUSION

Bureau Veritas Certification has performed a validation of the Kınık Wind Power Plant. The validation was performed on the basis of UNFCCC criteria, applied CDM Methodology ACM0002 Version 17, VCS criteria and Turkey's criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and internal technical review followed by the issuance of the final validation report and opinion. Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the VCS-PD provides analysis of investment barriers to determine that the project activity itself is not the baseline scenario.

As a wind power production plant, the project is likely to result in reductions of GHG emissions. An analysis of the investment barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Project's technical aspects, annual expected generation amounts and ex-ante calculated grid combined emission factor has been confirmed by the validation team and the ex-ante calculations of the expected emission reductions have been validated, therefore given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions (90,271 tonnes CO₂e) that has been validated in the VCS-PD v.3.0.

The review of the project design documentation (version 03) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfilment of stated criteria.

In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM Methodology ACM0002 Version 17, VCS v.03.6 and the relevant host country criteria. Bureau Veritas Certification thus requests registration of 'Kınık Wind Power Plant' as a VCS-VCU project activity.



Mrs. Seda YÜCEL

Internal Technical Reviewer

21/12/2017



Mr. Furkan SADIKOĞLU

Lead Verifier

21/12/2017

6 REFERENCES

- Kinik Wind Power Plant VCS PD Ver 1.0 - 13/10/2017
- Kinik Wind Power Plant VCS PD Ver 2.0 - 01/12/2017
- Kinik Wind Power Plant VCS PD Ver 3.0 - 05/12/2017
- Financial Analysis_Kinik RES
- Kinik WPP_Common Practice_v.0.1
- Financial Analysis_Kinik RES_v0.2
- CAPEX_OPEX_final
- Financial Analysis_Kinik RES_v0.3
- Baseline Study_v.01_Kinik WPP
- SGK Records
- First Index Protocol – 08/12/2016
- TEIAS Connection Agreement
- EIA Not Required Certificate – 15/02/2012
- Provisional Acceptance – 05/12/2016
- Generation License – 08/03/2012
- Project Introduction File – December 2011
- Turbine Agreement – 23/05/2014
- Construction Agreement – 17/11/2015
- Loan Agreement - 20/04/2015

PERSONS INTERVIEWED

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VALIDATION TEAM

Internal Technical Reviewer: Seda YÜCEL – Chemical Engineer

Bureau Veritas Certification SAS – Internal Technical Reviewer

Fikriye Seda YÜCEL, B.Sc. in Chemical Engineering has completed her M.Sc. degree in Istanbul Technical University in Energy Science and Technology. She is auditor and trainer for ISO 50001 and auditor for ISO 14001 and has about 2 years of experience in management systems and 7 years of experience in energy management in industry. She has been involved in more than 20 GS and VCS projects as a team leader/validator/verifier especially in the energy sector. She has been working as Gold Standard team leader/validator/verifier and CDM trainee validator/verifier.

Team Leader : Furkan SADIKOĞLU – Electrical and Electronics Engineer

Bureau Veritas Certification SAS – Lead Verifier

Furkan Sadıkoğlu is an Electrical & Electronics engineer. He has an experience in renewable energy and LED lightning sectors and he has over 4 years' experience in energy sectors. He has participated online seminars in the Gold Standard Academy in 2012 ,2013 and 2017 and is a lead verifier for GHG emission reduction projects.

APPENDIX A: LARGE SCALE PROJECT ACTIVITIES VALIDATION PROTOCOL (REV 10.3)

Table 1 Validation requirements based on VVS version 09.0 (EB 82 Annex 14), PS version 09.0 (EB 79 Annex 13), PCP version 09.0 (EB 79 Annex 15), and Guidelines for completing the PD form version 01.0 (EB 66 Annex 9)

CHECKLIST QUESTION	Ref.	\$	COMMENTS	Draft Concl	Final Concl
Part I Cover Page					
(a) Is the title of the project activity provided?	PD		Title of the project is given as Kinik Wind Power Plant.	OK	OK
(b) Is the version number of the PD indicated?	PD		Version number of the PD is given as 0.1	OK	OK
(c) Is the completion date of the PD provided in DD/MM/YYYY format?	PD		Completion date of the PD is given as 13/10/2017.	OK	OK
(d) Are project participants indicated?	PD		Esinti Enerji Üretim Ticaret ve Sanayi Anonim Şirketi is the operating company of the project activity.	OK	OK
(e) Is the host party(ies) indicated?	PD		N/A	OK	OK
(f) Is the sectoral scope and selected methodology(ies) indicated?	PD		Under section 1.2 and 2.1 methodologies version numbers are valid version as ACM0002 Version 17.0.0.	OK	OK
(g) Is the estimated amount of annual average GHG emission reductions indicated?	PD		The estimated amount of annual average GHG emission reductions is given as 90,271 tCO ₂ e under section 1.1 and cover page of the VCS PD according to 165,000 MW/h.	OK	OK
Part II PD					
Description of project activity					
A.1 Purpose and general description of project activity					

CHECKLIST QUESTION	Ref.	\$	COMMENTS	Draft Concl	Final Concl
A.1.1 Is a brief description of the project activity provided, including a summary of the scope of activities/ measures that are to be implemented within the project activity?	PD PS	31(b)	A brief description of the project activity is provided under section 1.1 of the VCS-PD according to references transparently. Turbine technical specification references are not provided.	CAR06	OK
A.1.2 Are the scenario existing prior to the start of project and baseline scenario indicated?	PD		The scenario existing prior to the start of project and baseline scenario are indicated.	OK	OK
A.1.3 Does it explain how the project activity will reduce GHG emissions or increase GHG removals?	PS	31(c)	By the efficient utilization of the available wind energy by the project activity will replace the grid electricity.	OK	OK
A.1.4 Is the estimated of annual average and total GHG emission reductions for the chosen crediting period provided?	PD		Estimated total emission reduction over the 10 year crediting period is provided as 902,710 tCO ₂ e under section 1.1 according to 165,000 MWh generation.	OK	OK
A.1.5 Is a brief description of how the project activity contributes to sustainable development provided?	PD		Sustainable development specific goals are provided under section 1.1 of the VCS PD.	OK	OK
A.1.6 In order to determine whether the description of the proposed project activity in the PD is accurate, complete, and provides an understanding of the proposed CDM project activity, does the DOE conducted a physical site visit to assess the Project? If not, please justify.	VVS	65	The physical site visit was conducted on 08/11/2017 by the validation team to validate the description of the project activity provided in the VCS PD.	OK	OK
A.1.7 For all other proposed CDM project activities not referred to in VVS paragraphs 65-66, does the DOE undertaken the validation of project description by reviewing available designs and feasibility studies and should conduct comparison analysis with equivalent projects, as	VVS	67	The project activity is a large scale project and hence the DOE has undertaken a physical site visit to validate the project description. Hence this clause is not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	\$	COMMENTS	Draft Concl	Final Concl
appropriate.					
A.1.8 If the proposed CDM project activity involves the alteration of an existing installation or process, does the project description state the differences resulting from the project activity compared to the pre-project situation?	VVS	68	Not applicable as the project activity is a Greenfield project.	OK	OK
A.2 Location of project activity					
A.2.1 Is the host party(ies) indicated?	PD		Turkey has ratified the Kyoto Protocol however not set any emission reduction target; hence, it is not listed as an Annex B country of the Kyoto Protocol and will not be a host for Clean Development Mechanism (CDM) or Joint Implementation (JI) projects until the end of 2012, because of its particular situation. There is no DNA in Turkey. Hence, the checklist question is N/A.	OK	OK
A.2.2 Is region/state/province etc. indicated?	PD		Izmir Province	OK	OK
A.2.3 Is City/Town/Community etc. indicated?	PD		Kinik District Kodukburun Village	OK	OK
A.2.4 Are the details of physical location of the project activity, including information allowing the unique identification of this project activity and a map, provided?	PD		The detail of the project location is provided under section 1.8 of the VCS PD.	OK	OK
A.3 Technologies and measures					
A.3.1 Are there a list and the arrangement of the main manufacturing/ production technologies, systems and equipment involved?	PD		Under section 1.8 PLF has been calculated correctly.	OK	OK

CHECKLIST QUESTION	Ref.	\$	COMMENTS	Draft Concl	Final Concl
A.3.1.1 Is the information about the age and average lifetime of the equipment based on manufacturer's specifications and industry standards, and existing and forecast installed capacities, load factors and efficiencies included in the description?	PD		N/A	OK	OK
A.3.1.2 Are the monitoring equipments and their location in the systems included in the description?	PD		N/A	OK	OK
A.3.2 Are energy and mass flows and balances of the systems and equipment included in the project activity provided?	PD		Energy and mass flows and balances of the systems and equipment are described in VCS PD.	OK	OK
A.3.3 Are the types and levels of services provided by the systems and equipment that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/ production equipment and systems outside the project boundary provided?	PD		Not applicable as it is a green field project.	OK	OK
A.3.4 Does the description clearly explain how the same types and levels of services provided by the project activity would have been provided in the baseline scenario?	PD		The project will have 17 wind turbines with a unit capacity of 3.200 kWm and 16 wind turbines with a unit capacity of 3.000 kWe and one turbine with a unit capacity of 2.000 kWe each. It is described that the turbines have connected to 154 kV Aliğa Bilgin RES electricity transmission line. But under Figure-3 connection point described as İzmir Havza TM. Please clarify.	CL01	OK
A.3.5 Is a list of facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity provided?	PD		Turkish national grid is the baseline.	OK	OK

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A.3.6 Is a list of facilities, systems and equipment in the baseline scenario provided?	PD		Turkish national grid is the baseline.	OK	OK
A.3.7 Is a description of how technologies and measures and know-how to be used are transferred to the Host Party (ies) included?	PD		The project makes greater use of wind renewable energy generation resources for sustainable energy production.	OK	OK
A.4 Parties and project participants					
A.4.1 Are following information provided in a tabular format?					
A.4.1.1 List of project participants and parties	PD		Esinti Enerji Üretim Ticaret ve Sanayi Anonim Şirketi is the operating company of the project activity.	OK	OK
A.4.1.2 Identification of Host Party	PD		Identification of Host Party is given as Turkey	OK	OK
A.4.1.3 Indication whether the Party wishes to be considered as project participant	PD		There is an indication about the issue. N/A	OK	OK
A.5 Public funding of project activity					
A.5.1 Is it indicated whether the project activity receives public funding from Annex I Parties?	PD		Under section 1.12 of the VCS PD mentions that "The project neither has not created any other form of GHG-related environmental credit for GHG emission reductions or any renewable energy certificate."	OK	OK
A.5.2 In case where public funding from Annex I Parties is involved, are followings provided? (a) Information on Parties providing public funding (b) Attached in Appendix 2: the affirmation	PS	34		OK	OK

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obtained from such Parties that such funding does not result in a diversion of official development assistance, is separate from, and is not counted towards the financial obligations of those Parties			N.A.		
A.6 Debundling for project activity					
A.6.1 Do the project participants demonstrate that the project activity is not a debundled component of a large-scale project activity?	PD PS	87	N.A.	OK	OK
A.6.2 Do the project participants follow the applicable provisions in the "Guidelines on assessment of debundling for SSC project activities"?	PS	88	N.A.	OK	OK
Application of selected approved baseline and monitoring methodology					
Reference of methodology					
Is the selected methodology (ies) indicated with exact reference (number, title and version)?	PD		The selected methodology is provided as ACM0002 Version 17.	OK	OK
Are the baseline and monitoring methodologies selected by the project participants the valid versions of those approved by the Board?	VVS	70	The selected baseline and monitoring methodologies are the valid versions.	OK	OK
Are there any tools and other methodologies to which the selected methodology indicated?	PD		1. Tool to calculate the emission factor for an electricity system (Version 06.0.0); 2. Tool for the demonstration and assessment of additionality (Version 07.0.0); 3. Combined tool to identify the baseline scenario and demonstrate additionality (Version 06.0.0)	OK	OK

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			4. Tool to determine the remaining lifetime of the equipment		
Has specific guidance and/or clarifications provided by the Board with respect to the approved methodology and any applicable tools been applied?	VVS	71	N.A.	OK	OK
Is there any deviation or clarification requested for the approved methodology?	VVS	78-81	N.A.	OK	OK
Project activity eligibility					
Is the selected baseline and monitoring methodology applicable to the project activity and that the selected version valid at the time of submission of the proposed project activity for registration?	VVS	73-75	Project activity is renewable and large scale project so the valid version of ACM0002 methodology is used at the time of submission of the proposed project activity for registration.	OK	OK
Is the choice of the selected methodology(ies) justified by showing that the project activity meets each applicability conditions of the selected methodology(ies)?	PD VVS	76	All applicability criteria listed in ACM0002 are met by the proposed GS VER project activity. As it is a grid connected power plant, the applicability criteria of the EF Tool are also met.	OK	OK
Is it demonstrated that the project activity qualifies as Type I, II, and/or III during every year of the crediting period in accordance with applicable provisions for project activity eligibility in the Project standard?	PD		N.A.	OK	OK
Is it determined that the project activity conforms to one or more of the approved small-scale methodologies applied in conjunction with the	VVS	152	N.A.	OK	OK

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general guidelines to SSC CDM methodologies?					
Do the project participants explain the documentation that has been used as a basis for justification and provide the references, or include the documentation in Appendix 3 of the PD?	PD		References are indicated in Appendix-1 and Appendix 2 of the VCS PD. And also detailed emission factor calculations are indicated.	OK	OK
Project boundary					
Is the project boundary of the project activity defined based on the guidance of the selected methodology(ies)?	PD		The project boundary includes the project site and all power plants connected physically to the Turkish National Grid. Table 5 provides that on project scenario there will be CH4 emission. Please correct.	CAR01	OK
Is a flow diagram of the project boundary presented, physically delineating the project activity?	PD		Figure 3 is describes the project activity.	OK	OK
Does the flow diagram include the equipment, systems and flows of mass and energy described? In particular, is the emission sources and GHGs included in the project boundary and the data parameters to be monitored indicated in the diagram?	PD VVS	82	N/A	OK	OK
Establishment and description of baseline scenario					
Is an explanation how the baseline scenario is established in accordance with the selected baseline methodology provided?	PD VVS	89	The project applied CDM-EB approved "ACM0002: Grid connected renewable electricity generation from renewable sources – Version 17.0.0."	OK	OK
When establishing the baseline scenario, and where "future anthropogenic emissions by sources are projected to rise above current levels due to the	PS	42		OK	OK

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specific circumstances of the host Party", do the project participants follow the "Guidelines on the consideration of suppressed demand in CDM methodologies"?			N.A.		
Does the PD explain and justify the key assumptions and rationale, provide and explain all data used to establish the baseline scenario (variables, parameters, data sources etc.) preferably in a tabular form, and provide all relevant documentation and/or references?	PD		PD explain and justify the key assumptions and rationale, provide and explain all data used to establish the baseline scenario.	OK	OK
To determine the performance of equipment used in the proposed small-scale CDM project activity, do project participants use:	PS	91			
The appropriate value specified in the selected methodology;	PS	91(a)	N.A.	OK	OK
The national standard for the performance of the equipment type (project participants shall identify the standard used) if the value specified in is not available;	PS	91(b)	N.A.	OK	OK
An international standard for the performance of the equipment type, such as International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) standards (project participants shall identify the standard used) if the value specified in is not available;	PS	91(c)	N.A.	OK	OK
The manufacturer's specifications, provided that they are tested and certified by national or	PS	91(d)		OK	OK

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international certifiers, if the value specified in is not available;			N.A.		
Performance data from test results conducted by an independent entity for equipment installed under the project activity if the value specified in is not available.	PS	91(e)	N.A.	OK	OK
Are the documents and sources referred to in the PD correctly quoted and interpreted and are they crosschecked with other verifiable and credible sources, such as local expert opinion, if available?	VVS	91	References are correctly provided.	OK	OK
Does the PD provide a description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity?	VVS	92	The baseline scenario is identified according to the "Baseline Methodology Procedure" of ACM0002 Version 17.0.0	OK	OK
Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed project activity?	VVS	93	The baseline scenario is identified according to the "Baseline Methodology Procedure" of ACM0002 Version 17.0.0	OK	OK
Has relevant national and/or sectoral policies and circumstances (type E+ or E-), such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector been taken into account?	VVS	93	N.A.	OK	OK
Does the PD provide a transparent description of the baseline scenario?	PD		Transparent description of the baseline scenario is provided.	OK	OK

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Demonstration of additionality					
Is the project activity demonstrated additional in accordance with one of options below?	PD				
Attachment A of Appendix B: In such cases, project participants should also follow the "Non-binding practice examples to demonstrate additionality for SSC project activities".	PS VVS	96(a) 159	N.A.	OK	OK
Any applicable additionality tool;	PS	96(b)	The project activity demonstrated additional in accordance with the selected methodology through Investment analysis.	OK	OK
Guidelines for demonstrating additionality of microscale project activities"? If the proposed project activity meets one of the following criteria: a) Type I: Project activities up to 5 MW that employ renewable energy as their primary technology; b) Type II: Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year, or c) Type III: Other project activities not included in Type I or Type II that aim to achieve GHG emissions reductions at a scale of no more than 20 ktCO ₂ e per year.	PS VVS	96(c) 160	N.A.	OK	OK
If investment analysis is used:					
Are all relevant assumptions and parameters used in the analysis listed?	PD		Options are described according to "Tool for the demonstration and assessment of additionality" Version 7.0.0	OK	OK

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Is the latest version of the "Guidelines on the assessment of investment analysis" applied?	VVS	118	Investment analysis is applied for the project activity.	OK	OK
Is project activity one of the following cases in regards to investment analysis:	VVS	119			
The proposed project activity would produce no financial or economic benefits other than CDM-related income;	VVS	119(a)	The project activity not produces any financial or economic benefits other than GS income.	OK	OK
The proposed project activity is less economically or financially attractive than at least one other credible and realistic alternative;	VVS	119(b)	There is no alternative project activity for a comparison of the attractiveness of an investment.	OK	OK
The financial returns of the proposed project activity would be insufficient to justify the required investment.	VVS	119(c)	Investments analyze shows that the project is not economically feasible without GS VER credit income.	OK	OK
Has the accuracy of financial calculations carried out for investment analysis been verified as follows:	VVS	120			
Determine the suitability of the financial indicator selected by the project participants and conduct a thorough assessment of all parameters and assumptions used in calculating such financial indicators, and determine the accuracy and suitability of these parameters using available evidence and applying its expertise in relevant accounting practices	VVS	120(a)	IRR calculation sheet is provided to the validation team.	OK	OK
Cross-check the parameters against third-party or publicly available sources, such as	VVS	120(b)	Parameters are validated during validation.	OK	OK

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invoices or price indices					
Review, as appropriate, feasibility reports, public announcements and annual financial reports related to the proposed project activity and the project participants	VVS	120(c)	Parameters are validated during validation.	OK	OK
Assess the correctness of computations carried out and documented by the project participants; and	VVS	120(d)	Parameters are validated during validation.	OK	OK
Assess, where applicable, the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions	VVS	120(e)	Sensitivity analysis are determined in VCS PD.	OK	OK
If benchmark analysis is used:					
Is the benchmark clearly indicated?	PD		Under sub-step 2b benchmark analysis is applied. Required/expected returns on equity are used for the benchmark analysis.	OK	OK
Is the type of benchmark applied suitable for the type of financial indicator presented?	VVS	121(a)	Equity IRR is selected as the financial indicator for the demonstration of the additionality of the project as permitted in the additionality tool.	OK	OK
Does the risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity?	VVS	121(b)	The cost of equity is confirmed as 13.1 % according to Cost of Equity formulation.	OK	OK
Is it reasonable to assume that no investment would be made at a rate of return lower than the	VVS	121(c)	The benchmark and IRR confirmed as 13.1 %.	OK	OK

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benchmark?					
If cost comparison is used:					
Are the scenarios compared described?	PD		N.A.	OK	OK
If PPs rely on values from FSR:	VVS	122			
Has the FSR been the basis of the decision to proceed with the investment in the project?	VVS	122(a)	Commissioning dates of the turbines with turbine numbers are not presented under Table-1 of VCS PD. Also description for the 17 th Turbine commissioning is not presented.	CAR02	OK
Are the values used in the PD and associated annexes fully consistent with the FSR? If inconsistencies occur, was the appropriateness of the values validated?	VVS	122(b)	The values used in VC PD are associated annexes fully consistent with the FSR.	OK	OK
On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVS	122(c)	The values are checked and confirmed by validation team.	OK	OK
If barriers analysis is used:					
Is the "Guidelines for objective demonstration and assessment of barriers" followed?	PS	48	Investment Barriers, Technological Barriers and Barriers due to prevailing practice is already validated.	OK	OK
Is it ensured that only the most relevant barriers selected?	PD		N/A	OK	OK
Is the credibility of the barriers justified with key facts	PD			OK	OK

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and/or assumptions and the rationale?			N/A		
Is it ensured that issues that have a direct impact on the financial returns of the project activity are not considered as barriers but assessed by investment analysis? This does not refer to either: (a) Risk related barriers (b) Barriers related to the unavailability of sources of finance for the project activity	V/S	125	N/A	OK	OK
Were the barriers determined as real?	V/S	126(a)	N/A	OK	OK
Were the barriers determined as preventing the implementation of the project activity but not the implementation of at least one of the possible alternatives?	V/S	126(b)	N/A	OK	OK
Common Practice Analysis					
If the project type is first-of-its kind, do the project participants consider "Guidelines on additionality of first-of-its-kind project activities"?	V/S PS	128 49(a)	Common practice has been correctly applied.	OK	OK
If the project type is not first-of-its kind, has common practice analysis been conducted considering "Guidelines on common practice"?	V/S PS	128 49(b)	Common practice has been correctly applied.	OK	OK
Was it assessed whether the geographical scope of the common practice analysis is appropriate for the assessment related to the project activity's technology or industry type?	V/S	129(a)	N/A	OK	OK

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Was it determined to what extent similar and operational projects, other than CDM project activities, and have been undertaken in the defined region?	VVS	129(b)	N/A	OK	OK
Are similar and operational projects, other than CDM project activities, already "widely observed and commonly carried out" in the defined region? Is it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVS	129(c)	N/A	OK	OK
Prior consideration of the clean development mechanism					
If the project activity start date prior to the date of publication of the PD for stakeholder comments, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	PD VVS	105	N/A	OK	OK
Is the start date of the project activity, reported in the PD, the earliest date at which either the implementation or construction or real action of a project activity begins?	VVS	106	N/A	OK	OK
If the project activity requires construction, retrofit or other modifications, is it ensured that the date of commissioning not considered as the project activity start date?	VVS	106	N.A.	OK	OK
Is it a project activity with a start date on or after 02	VVS	106	Starting date of the project activity is	OK	OK

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August 2008, or before 02 August 2008?			determined.		
For a project activity with a start date on or after 02 August 2008, are the following provisions to be satisfied:					
Has the PP informed the Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status within 180days of the project activity start date?	PS VVS	27 107	N.A.	OK	OK
Do the project participants inform the secretariat of the progress of the project activity every subsequent two years after the initial notification, until the PD regarding the project activity has been published for global stakeholder consultation or, a new baseline and monitoring methodology is proposed or a revision of an approved baseline and monitoring methodology is requested for the project activity before the start date?	PCP	9	N.A.	OK	OK
For a project activity with a start date before 02 August 2008, are the following elements to be satisfied:	VVS	108			
Is evidence of their awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project provided?	PS VVS	28(a) 108	N.A.	OK	OK

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Are evidence that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation provided?	PS VVS	28(b) 108-110	N.A.	OK	OK
Is an implementation timeline of the proposed CDM project activity provided?	PS	28(c)	N.A.	OK	OK
Emission reductions					
Explanation of methodological choices					
Does the PD explain how the methods or methodological steps in the selected methodology, for calculating project emissions, baseline emissions, leakage emissions and emission reductions are applied?	PD VVS	96	The 3.4 section of the VCS PD describes the steps for the calculation of emission reduction in accordance with ACM0002 Version 17.0.0.	OK	OK
In case the methodology(ies) provide different options to choose from, does the PD indicate and justify which option is chosen for the project activity?	PD VVS	97	The baseline emission cases are line with the methodology ACM0002 Version 17.0.0 and "Tool to calculate the emission factor for an electricity system Version 06.0.0".	OK	OK
In case the methodology(ies) allow different default values, does the PD indicate and justify which of the default values have been chosen for the project activity?	PD		The baseline emission cases are line with the methodology ACM0002 Version 17.0.0 and "Tool to calculate the emission factor for an electricity system Version 06.0.0".	OK	OK
Data and parameters fixed ex ante					
If data and parameters will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed	PD VVS	98		OK	OK

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throughout the crediting period, are all data sources and assumptions: a) Appropriate and correct? b) Applicable to the proposed CDM project activity? c) Resulting in a conservative estimate of the emission reductions?			The baseline emission cases are line with the methodology ACM0002 Version 17.0.0 and "Tool to calculate the emission factor for an electricity system Version 06.0.0".		
For each piece of data or parameter, are tables provided in accordance with the instructions?	PD		Tables for each piece of data and parameters are provided in accordance with the instructions.	OK	OK
Ex ante calculations of emission reductions					
Is a transparent ex ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology provided?	PD		The baseline emission cases are line with the methodology ACM0002 Version 17.0.0 and "Tool to calculate the emission factor for an electricity system Version 06.0.0".	OK	OK
Is the information how each equation is applied, in a manner that enables the reader to reproduce the calculation, provided?	PD		The information how each equation is applied to reproduce the calculation is provided.	OK	OK
Is the information of additional background information and/or data provided in Appendix 4, including relevant electronic spreadsheets?	PD		Baseline Study excel sheet is provided to the validation team.	OK	OK
Is a sample calculation for each equation used provided, substituting the values used in the equations?	PD		Sample calculations for each equation used are provided, substituting the values used in the equations.	OK	OK

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If the proposed small-scale CDM project activity involves more than one component, does the project participants provide ex ante calculations of baseline, project and leakage GHG emissions as well as GHG emission reductions for each year of the crediting period and for each component separately?	PD PS	90	N.A.	OK	OK
In cases where leakage is to be considered in the proposed small-scale CDM project activity, do project participants consider leakage only within the boundaries of non-Annex I Parties?	PS	92	N.A.	OK	OK
In case of replacement of existing equipments, do project participants estimate the point in time where the existing equipments would be replaced in the absence of the proposed small-scale CDM project activity in accordance with the "Tool to determine the remaining lifetime of equipment"? For household devices/ appliances, project participants may disregard the remaining lifetime.	PS PS	93 94	N.A.	OK	OK
Do norms, specifications, standards and test procedures cited in the selected methodology refer to the latest version of the documentation available at the time of submission of the PD to the DOE for validation?	PS	95	Norms, specifications, standards and test procedures are cited in the selected methodology refer to the latest version of the documentation.	OK	OK

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Summary of the ex-ante estimates of emission reductions					
Are the results of the ex-ante estimation of emission reductions for all years of the crediting period, provided in a tabular format?	PD		The results of the ex-ante estimation of emission reductions for all years of the crediting period are provided in a tabular format.	OK	OK
If the project activity involves more than one component, does the PD provide a separate table for each of the component or each of the selected methodology(ies), and whether the PD provide a table showing the aggregate emission reductions of the project activity?	PD		N.A.	OK	OK
Monitoring Plan					
Data and parameters to be monitored					
Is specific information on how the data and parameters that need to be monitored would actually be collected during monitoring included?	PD		EGravity, parameter is provided under the monitoring plan section of the VCS PD. All specific information on how data need to be monitored and collected during monitoring is provided.	OK	OK
For each data or parameter, is the information completed, in a tabular format:					
The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred.	PD		Net electricity supplied by the project activity to the grid will be monitored continuously using a cumulative electricity meter. Data will be archived monthly. Values will be double checked against PMUM. The meters first index protocol, first calibration,	CAR03	OK

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Is an estimate of the data/ parameter that will be monitored during the crediting period provided?	PD		details are not determined under section 4.2 and 4.3 of VCS PD.		
Is the estimate provided in the PD for this monitored data or parameter reasonable?	VVS	98	Yes, estimate for all parameters that will be monitored during the crediting period, has been tabulated under Table 27. Please see CAR09	OK	OK
Where data or parameters are to be measured, does it specify the measurement methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals?	PD		The net electricity generation supplied to the grid will be measured continuously by TEAIS meters (both main and spare) and recorded monthly. (Remote automatic meter reading system-OSOS).	OK	OK
Is a description of the QA/QC procedures including the calibration procedures, where applicable, provided?	PD		Calibration procedures of the meters are clearly described through the references under section 4.3 of the VCS PD.	OK	OK
Is the purpose of data indicated?	PD		There is a statement about the purpose of the monitoring data under section 4.2 of the VCS PD.	OK	OK
Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVS	131	The monitoring plan is based on the ACM0002 Version 17.	OK	OK
Does the monitoring plan contain all necessary parameters?	VVS	132(a)	The 4.3 section of the VCS PD contains all the parameters in accordance with the applied	OK	OK

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Do the means of monitoring described in the plan comply with the requirements of the methodology including applicable tool(s)?	VVS	132(a)	methodology ACM0002 Version 17. The monitoring plan is based on the ACM0002 Version 17.	OK	OK
Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVS	132(b)	The monitoring plan is based on the ACM0002 Version 17.	OK	OK
Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified?	VVS	132(b)	The monitoring plan is based on the ACM0002 Version 17.	OK	OK
Sampling plan					
Are there any data and parameters monitored in section B.7.1 above to be determined by a sampling approach?	PD		N/A	OK	OK
Is a description of the sampling plan provided in accordance with the recommended outline for a sampling plan in the "Standard for sampling and surveys for CDM project activities and programme of activities"?	PD		N/A	OK	OK
Other elements of monitoring plan					
Is the operational and management structure, that the project operator will implement in order to monitor emission reductions and any	PD PS	56(a)	N/A	OK	OK

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leakage generated by the project activity, described in the PD?					
Are the responsibilities for and institutional arrangements for data collection and archiving clearly indicated?	PD PS	56(c)	Yes, the responsibilities for and institutional arrangements for data collection and archiving clearly indicated under section 4.3 of the VCS PD.	OK	OK
Does the monitoring plan include provisions to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERRs, whichever occurs later?	PS	56(b)	Yes, the monitoring plan described in the VCS PD states that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of VERs, whichever occurs later.	OK	OK
Does the monitoring plan include uncertainty levels, methods and the associated accuracy level of measuring instruments to be used for various parameters and variables?	PS	56(e)	Monitoring plan not includes uncertainty levels and the associated accuracy level of measuring instruments under section 4.3 of VCS PD.	CAR04	OK
Does the monitoring plan include specifications of the calibration frequency for the measuring equipment's?	PS	56(f)	There is a statement about the calibration frequency for the measuring devices under section 4.3 of VCS PD.	OK	OK
Duration and crediting period					
Duration of project activity					
Start date of project activity					
Is the start date of the project activity stated, in the format of DD/MM/YYYY?	PD		The start date of the project activity is stated as 05/12/2016 under section 1.5 of VCS PD. The first crediting period start date has been given and confirmed as 05/12/2016.	OK	OK

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Does it describe how the start date has been determined and provide evidence to support this date?	PD		The start date of first crediting period is the first commissioning date of the project	OK	OK
Expected operational lifetime of project activity					
Is the expected operational lifetime of the project activity stated in years and months?	PD		The reference of the expected operational lifetime of the project activity is available under section 1.8 of VCS-PD.	OK	OK
Crediting period of project activity					
Type of crediting period					
Is the type of crediting period chosen for the project activity stated?	PD		Renewable crediting period is chosen.	OK	OK
In case a renewable crediting period was chosen, does it indicate whether it is the first, second or third?	PD		The project's crediting period is ten years, 0 months which is planned to be renewable twice.	OK	OK
Start date of crediting period					
Is the start date of crediting period stated in the format of DD/MM/YYYY?	PD		Provided as 05/12/2016.	OK	OK
Length of crediting period					
Is the length of crediting period stated in years and months?	PD		The length of the second crediting period is 7 years, 0 months.	OK	OK
Environmental impacts					
Analysis of the environmental impacts					
If required by the host Party, is an analysis of the	PD			OK	OK

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environmental impacts of the proposed small-scale CDM project activity carried out and a summary of the analysis of the environmental impacts of the project activity and references to all related documentation provided?	PS	99	Reference for the EIA document dd. 15/02/2012 is provided.		
Local stakeholder consultation					
Solicitation of comments from local stakeholders					
Did the project participants complete a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed project activity?	V/S	138	Local Stakeholder consultation details are presented under section 5.3 of VCS PD.	OK	OK
Is the process by which comments from local stakeholders have been invited provided?	PD		Mayor of Kinik Town was invited faceto face and phone call to the meeting. Apart from this kind of invitation other stakeholders were invited by local announcements such as announcement done on town coffeehouse.	OK	OK
Summary of comments received					
Are stakeholders that have made comments identified?	PD		There were no concerns on the impact of this project activity to sustainable development and environmental. Briefly, the meeting was closed by a general support from participants.	OK	OK
Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	V/S	139 (a)	Comments by local stakeholders that can reasonably be considered by the project activity.	OK	OK
Is the summary of comments provided complete?	PD V/S	139 (b)	The summary of comments are completely provided in VCS PD.	OK	OK

CHECKLIST QUESTION	Ref.	\$	COMMENTS		Draft Concl	Final Concl
Report on consideration of comments received						
Is information provided to demonstrate that all comments received have been considered?	PD VVS	139 (c)	Considerations of comments received from the stakeholders are added to section 5.4 of VCS PD.		OK	OK
Approval and authorization						
General						
Is it indicated whether the letter(s) of approval from Party(ies) available at the time of submitting the PD to the validating DOE?	PD		N.A.		OK	OK
Approval			COUNTRY A	COUNTRY B		
Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PD provided a written letter of approval?	VVS	38	N.A.	N.A.	OK	OK
Does the letter of approval from DNA of each Party confirm that : (a) The Party is a Party of the Kyoto Protocol (b) The participation is voluntary (c) In the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country (d) Refers to the precise proposed CDM project activity title in the PD being submitted for registration	VVS	39				
Is(are) the letter(s) of approval unconditional with respect to above?	VVS	40	N.A.	N.A.	OK	OK

CHECKLIST QUESTION	Ref.	\$	COMMENTS		Draft Concl	Final Concl
Has(ve) the letter(s) of approval been issued by the respective Party's DNA? If there is doubt with respect to above, was it verified with the DNA that the letter of approval is valid for the proposed CDM project activity under validation?	VVS	41,42	N.A.	N.A.	OK	OK
Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVS	51	N.A.		OK	OK
Authorization						
Has each project participant been authorized by at least one Party involved in a letter of approval?	VVS	45	N.A.		OK	OK
Is the information in tabular form in the PD consistent with the contact information for project participants provided?	VVS	46	N.A.		OK	OK
Are any entities other than those approved as project participants included in the PD?	VVS	47	N.A.		OK	OK
Has the approval of participation issued from the relevant DNA? And if in doubt, was it verified with the DNA that the approval of participation is valid for the proposed CDM project participants?	VVS	48	N.A.		OK	OK
Part III Others						
Global Stakeholder Consultation						
Is there any comment on the PD of the proposed project activity received during Global Stakeholder Consultation process?	VVS	34	A brief summary of the comments received from the stakeholder is described in VCS PD.		OK	OK

CHECKLIST QUESTION	Ref.	\$	COMMENTS	Draft Concl	Final Concl
If yes, have all comments been taken into account during the validation of the proposed project activity?	VVS	35	There were no concerns on the impact of the project activity to sustainable development and environmental.	OK	OK
If comments indicate that the proposed project activity does not comply with the CDM requirements and are not substantiated, is there any further clarification from the entity providing the comment?	VVS	36	There were no concerns on the impact of the project activity to sustainable development and environmental.	OK	OK
If yes, how comments received have been taken due account?	VVS	36	N/A	OK	OK
If no, are the comments as originally provided proceeded to assess?	VVS	36	N/A	OK	OK
Modalities of Communications (Moc)					
Has the corporate identity of all project participants and focal points included in Moc statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories been validated by:	VVS	53	N.A.	OK	OK
Directly checking evidence for corporate, personal identity and other relevant documentation; or	VVS	54(a)	N.A.	OK	OK
Notarized documentation; or	VVS	54(b)	N.A.	OK	OK
Written confirmation from the project participant or the coordinating/managing entity that all corporate and personal details, including specimen signatures, are valid and accurate.	VVS	54(c)	N.A.	OK	OK

CHECKLIST QUESTION	Ref.	\$	COMMENTS	Draft Concl	Final Concl
If above was chosen, is it ensured that the MoC statement is received from a project participant with whom the DOE has a contractual relationship?	V/S	55	N.A.	OK	OK
If above was chosen, is it ensured that the official who submits the MoC statement to the DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant?	V/S	56	N.A.	OK	OK
If it is unable to validate the requirements by applying to above, are any further validation activities performed?	V/S	57	N.A.	OK	OK
Has the latest version of the form "Modalities of Communication statement" (F-CDM-MOC) been used?	V/S	60(a)	N.A.	OK	OK
Is the information required as per F-CDM-MOC, including its annex 1, correctly completed?	V/S	60(b)	N.A.	OK	OK
Do the project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1?	V/S	60(c)	N.A.	OK	OK

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<u>CAR01</u> The project boundary includes the project site and all power plants connected physically to the Turkish National Grid. Table 5 provides that on project scenario there will be CH4 emission. Please correct.		The Table 5 has been revised accordingly.	<u>Review 1:</u> Table 5 has been revised. <u>The corrective action request has been closed.</u>
<u>CAR02</u> Commissioning dates of the turbines with turbine numbers are not presented under Table-1 of VCS PD. Also description for the 17th Turbine commissioning is not presented.		Commissioning dates of the turbines with turbine numbers including 17th one have added under Table-1 of VCS PD. But 2nd Turbine commissioning is not finished.	<u>Review 1:</u> The details are added under Table-1. <u>The corrective action request has been closed.</u>
<u>CAR03</u> Net electricity supplied by the project activity to the grid will be monitored continuously using a cumulative electricity meter. Data will be archived monthly. Values will be double checked against PMUM. The meters first index protocol, first calibration, details are not determined under section 4.2 and 4.3 of VCS PD. Also calibration records are not provided.		Section 4.2 and 4.3 of VCS PD have been revised accordingly. First index protocol and first calibration record have been provided to the DOE.	<u>Review 1:</u> Section 4.2 and 4.3 have been revised. Calibration records are provided to validation team. <u>The corrective action request has been closed.</u>

<u>CAR04</u>		- Monitoring plan has revised accordingly under section 4.3 of VCS PD.	<u>Review 1:</u> Section 4.3 has been revised. <u>The corrective action request has been closed.</u>
<u>CAR05</u>		- SGK records of the employee have been provided to the DOE.	<u>Review 1:</u> SGK records have been provided. <u>The corrective action request has been closed.</u>
<u>CAR06</u>		- Turbine technical specification file has been already provided to the DOE.	<u>Review 1:</u> Specifications are provided in previous documents. <u>The corrective action request has been closed.</u>
<u>CAR07</u>		- VCS PD version 3.3 is used now.	<u>Review 1:</u> Version number has been revised accordingly. <u>The corrective action request has been closed.</u>

CAR08 - Please provide the Damadoran's files used for the benchmark selection process. - Please answer if fx rate (in TRY) is used in any of the calculations. What value is being chosen? - When is the construction period? How long does the construction take? Please explain the Total Energy Production in year 2016. Please explain why Applied Electricity Tariff is 5 for 2017. - Finance cost shouldn't be same for whole years because debt balance should reduce after each years' principle payments. Interest cost/finance cost should have been decreased each year.		- Damadoran's files has been provided to the DOE for benchmark selection process. - Loans are borrowed via Euro. Euro/USD parity is used in the calculations (loan payments) and this value is taken as 1.10 during calculations. (Bank Loan Agreement date 18.07.2017) - The construction period is between December 2015 – December 2016 (one year). The production started on 6th December 2016 and the production between 6th and 31st December 2016 is 13,924 MWh. The tariff 5 cent/KWh is taken for 2016 and 2017 since the PP have not applied for Mechanism of Supporting Renewable Energy Sources (YEKDEM) until 31 October 2016. They have been covered by YEKDEM beginning from 2018, so the tariff is taken 0.79 cent/KWh for the next 5 years, and 0.73 cent/KWh for the following 5 years. For other years tariff is taken 0.50 cent/KWh. - Financial table has been revised accordingly.	Review 1: Please change Equity Risk Premium and Country Risk Premium figures as it is indicated in Damadoran_ctryprem15 file, 6.25% and 3.46% When 110% scenario is applied to Electricity Production (original value: 165,000), annual Total Energy Production becomes 199,560. It should have been 181,500. Please check the formulations. Please formulate H31 cell accordingly as well. Can be closed without further check. When investment sensitivity parameter is changed, total investment and equity figures are changed correctly but depreciation amounts are not changed. Please check. When 110% is applied to the investment cost sensitivity parameter, total depreciation is increased from 70m to 90m which means ~30% increase. Please link the depreciation calculation row to sensitivity parameter cell directly. The same methodology has been done for the Production Expenses row. <u>The corrective action request is still open.</u>
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- Total principle payments should be equal to the total Loan amount. Finance costs should not be taken into consideration in the loan/equity breakdown information. It is a profit/loss table item which has an impact on the corporate tax calculation only. - Please present the breakdown of investment cost so that the depreciation calculations can be verified. - Please present the production expenses breakdown. - Please check both Electricity Production and Electricity Price sensitivity parameter formulations. It seems doubling. - Investment cost sensitivity parameter has an impact on the total investment and loan breakdown table but it has no impact on the depreciation and debt principle payments amounts. Please check. "Investment cost sensitivity parameter should have an impact on the investment cost figure and this has a direct impact on the depreciation calculations. However, debt amount (and interest costs) shouldn't be affected by this parameter. It means, equity amount should change only."		- Financial table has been revised accordingly. - The breakdown of investment cost has been provided to the DOE. - Production Expenses breakdown has been provided to the DOE. - Last time standard-DOE has requested to do so. The PP has done it for conservative approach. - Financial table has been revised accordingly <u>Response 2:</u> Equity Risk Premium and Country Risk Premium figures have been changed as it is indicated in Damadoran_ctyprem15 file, 6.25% and 3.46%. The electricity production row has been revised accordingly. H31 cell has been revised accordingly. Financial table has been revised accordingly now. When investment sensitivity parameter is changed, depreciation amounts are changed as total Investment and equity figures.	<u>Review 2:</u> Corrections have been done. <u>The corrective action request has been closed.</u>
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<u>CL01</u> It is described that the turbines have connected to 154 kV Alağa Bilgin RES electricity transmission line. But under Figure-3 connection point described as İzmir Havza TM. Please clarify.		It has been revised as İzmir Havza TM in the VCS PD.	<u>Review 1:</u> It is revised as İzmir Havza TM in the VCS PD. <u>The corrective action request has been closed.</u>
<u>FAR01</u> During validation site visit T2 turbine was not installed and constructed. During verification T2 actual location should be check by the DOE.		During verification T2 details can be seen.	<u>Review 1:</u> During first verification T2 turbine location will be checked by verification DOE.