



Carbon Neutrality Report

ASUSTeK Computer Inc.

2012

Contents

1.	Declaration of Carbon Neutrality Commitment	2
1.1.	System Boundary	4
1.2.	Validation of Carbon Neutrality Declaration	5
2.	Implementation Measures of Carbon Neutrality.....	7
2.1.	Reduction Plan	7
2.2.	Achievement of Carbon Footprint Reduction.....	8
2.3.	Offsetting Residual Carbon Footprint.....	9
3.	Verification of Carbon Neutrality	11
3.1.	Information of Third Party Verification	11
3.2.	Contact Person of ASUS Carbon Neutrality	11
4.	Appendix	13
	Table 1 - Carbon footprint of U53SD and reduction	8
	Fig. 1. ASUS Greenhouse Gas Management Scheme	3
	Fig. 2. Boundaries of Notebook Life Cycle Inventory Assessment.....	4

1. Declaration of Carbon Neutrality Commitment

Although ASUS is not an energy-intensive company that emits a large amount of greenhouse gas (GHG), as a member of the global community, we are taking the responsibility to mitigate the greenhouse effect and save as much energy as we can. According to our Greenhouse Gas Management Scheme as described in figure 1, an enterprise-level GHG inventory assessment was started in 2008 in order to set a GHG emission reduction goal and climate change policy. A subordinate GHG inventory assessment and reduction measure was carried out at the same time. As for the carbon footprint management at the product level, we analyze and quantify the product carbon footprint over its entire life cycle. After the result of carbon footprint analysis is acquired, we infuse the ecodesign concept into our product design procedure and use the IPP strategy to lessen the environmental impact of the product over the entire product life cycle.

According to the results of the ASUS product carbon footprint inventory and GeSI analysis, product impact on the environment is the most significant factor in worsening the greenhouse effect. This is why we have chosen the notebook, our major consumer electronic product, as a subject to be carbon neutralized.

The total sales of U53SD bamboo series notebook will be the subject of our carbon neutrality efforts.

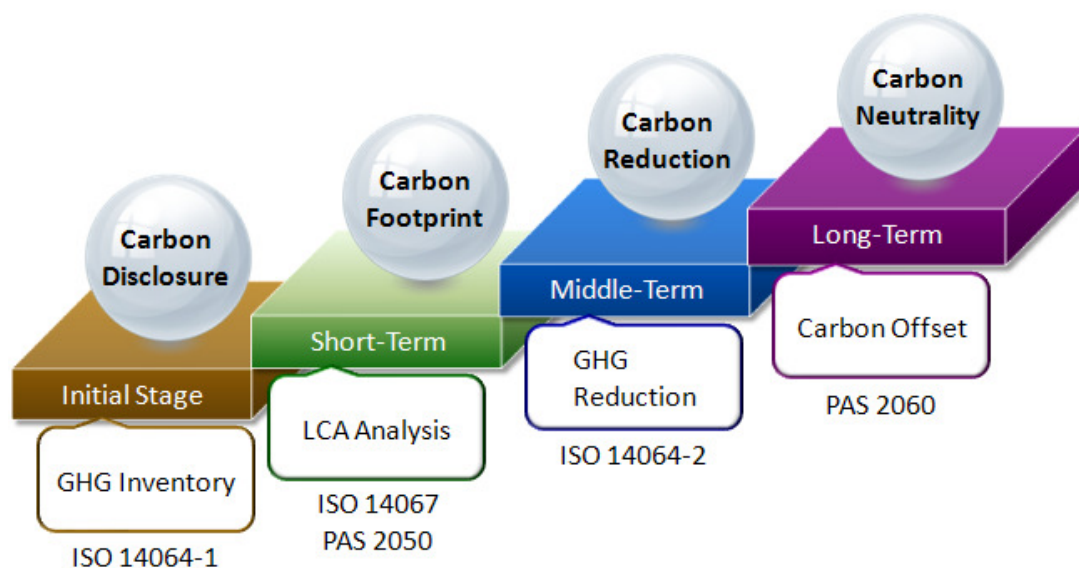


Fig. 1. ASUS Greenhouse Gas Management Scheme

1.1. System Boundary

The system boundary of our carbon footprint inventory is based on the notebook product-category rule (PCR:2008) set by the Global Environmental Declarations Network (GEDnet). However, this PCR demands that components be either mandatorily inclusive or voluntarily inclusive in carbon footprint inventory assessment, and it excludes some parts of the product life cycle. This rule does not comply with section 6.3 of the PAS 2050:2008 standard where 95% of the estimated emission should be included in the carbon footprint inventory assessment. Therefore, we included all the components into the assessment and calculated the carbon emission of the missing parts of the product life cycle to get the total amount.

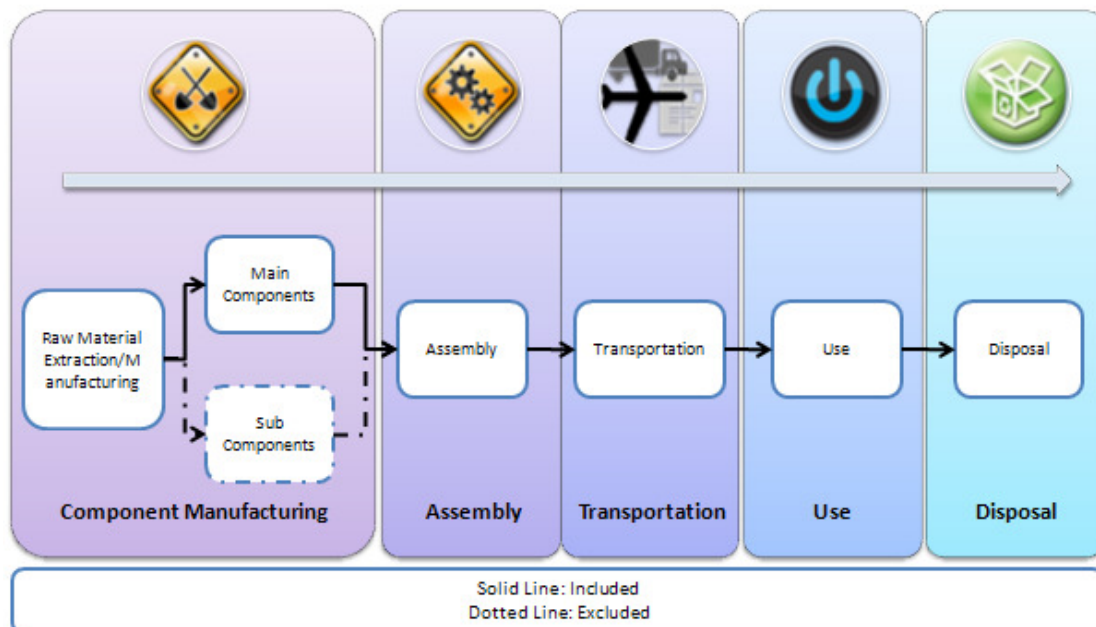


Fig. 2. Boundaries of Notebook Life Cycle Inventory Assessment

Although the carbon footprint inventory assessment is conducted based on the PAS 2050 standard, the complicated nature of the supply chain for electronic product forced us to split production into two different stages. One is the raw material extraction and component manufacturing, and the other one is where components are assembled into products. (Refer to Fig. 2 · Boundaries of Notebook Life Cycle Inventory Assessment).

We referred to the world's most recognized database Eco-invent to build our own carbon footprint inventory database and adopted the latest version of the calculation method to conduct the assessment, and we believe the calculated footprint is the best estimate based on reasonable costs of evaluation.

1.2. Validation of Carbon Neutrality Declaration

This Declaration of Carbon Neutrality Commitment is validated according to "PAS 2060:2010 Specification for the Demonstration of Carbon Neutrality".

- Subject of Carbon Neutrality:
ASUS Notebook Computer U53SD Series
- Validation Party:
Det Norske Veritas (DNV)



VALIDATION STATEMENT OF CARBON NEUTRALITY DECLARATION

Statement No. 00001-2011-CNMT-1WN

Page 1 of 2

ASUSTeK Computer Inc.

initiate project of

Declaration of Commitment to Carbon Neutrality of U53SD Notebook

Scope of Validation

Det Norske Veritas (DNV) has been commissioned by ASUSTeK Computer Inc. to perform a validation for the declaration of commitment to carbon neutrality of "U53SD Notebook Carbon Neutrality Project" (hereafter the "Project Activity").

Validation Criteria and Carbon Neutrality Programme

The validation was performed on the basis of PAS 2060:2010 as well as criteria given to provide for consistent project operations, monitoring, reporting and declaration.

Validation Statement

It is DNV's opinion that with reasonable assurance the declaration of commitment to the Project Activity in Taiwan, ROC as described in the Qualifying Explanatory Statements (version 01) of 8 December 2009 is free from material discrepancies in accordance with PAS 2060: 2010.

Chun-Nan Liu
GHG Verifier
September 29, 2011

David Hsieh
District Manager
DNV Certification Taiwan

The Verifier is liable to those for the information made available to it, and the signatory is liable for the data provided. DNV does not guarantee the accuracy or reliability of the information. DNV cannot be held liable for any consequences arising from the Validation or Opinion.

2. Implementation Measures of Carbon Neutrality

2.1. Reduction Plan

There are independent departments inside ASUS that are in charge of product design and of energy development. The plan not only utilizes a breakthrough design concept in which the plastic materials are replaced with bamboo, but also seeks to improve energy efficiency through an energy saving mechanism to reduce the carbon footprint.

The case of the Bamboo Series notebook is made of brown bamboo material instead of plastic without too much processing to retain the natural look, texture and touch. Bamboo is one of the fastest growing plants in the world. In addition, U53SD uses 100% natural and recyclable bamboo paper and non-woven cloth as packaging. The selection of these materials allows the innovative U53SD to lower its environmental impact.

Bamboo Materials

ASUS has chosen the bamboo received FSC certification rewarded by Forest Stewardship Council as the material for the notebook case and overcame all the difficulties encountered in production to realize this innovative green technology design.

ASUS also conducted inventory assessment on suppliers of bamboo material and get the emission coefficient of bamboo for 1.1933 kg-CO₂e, which is relatively low compared to 8.0049 kg-CO₂e for conventional PC+ABS materials. If one kilogram of conventional PC+ABS material is replaced by bamboo, a reduction of 6.8116 kg-CO₂e can be achieved. Therefore, an estimated 10% reduction of carbon emission in manufacturing stage can be expected if replacing PC+ABS plastic materials with bamboo.

Energy-saving Software

In addition to innovation at the material level, our energy development department has introduced an exclusive energy

saving technology, the Super Hybrid Engine (SHE). The SHE technology can significantly lower energy consumption through the synergy of both hardware and software, thus reducing the carbon footprint by approximately 20% at the use stage.

2.2. Achievement of Carbon Footprint Reduction

We determined the carbon footprint of U53SD and reduction in accordance with PAS 2050:2008. Table 1 lists the qualified carbon footprint of product sold to specific countries and the reduction.

Table 1 - Carbon footprint of U53SD and reduction

		Manufacture	Assemblage	Transportation	Usage	End of life
Expect reduction		10%	Unchanged	Unchanged	20%	10%
N51V	EU	188.91	7.85	151.76	95.05	3.98
U53SD		169.04	7.17	146.58	70.46	3.36
N51V	Asia	188.91	7.85	117.56	169.05	0.52
U53SD		169.04	7.17	113.56	124.67	0.45
GHG reduction	EU	19.87	0.68	5.18	24.59	0.62
	Asia			4.00	44.38	0.07
Reducing rate	EU	10.5%	8.7%	3.4%	25.9%	15.5%
	Asia			3.4%	26.3%	14.2%

Unexpected carbon reduction

The carbon reduction of U53SD occurred in other lifecycle stages did not directly result from the reduction plans described in section 2.1. We could merely make the conjecture as below:

- Manufacturing stage: In recent years, energy saving and carbon reduction become one of the most important cores of Corporate Social Responsibility. ASUSTeK performs GHG inventory according to ISO 14064-1 and has annual energy efficiency improvement plans that help to reduce the use in energy and the GHG emission. In 2011, we reduced 19.3% of the GHG emissions associated with energy use (based on 2008 level). In addition,

our EMS executed several GHG reduction plans. On the other hand, the government raised the renewable energy rate resulting in the decrease in the emission factors. Concluding the above three situations, the reduction performance of U53SD was better than we expected.

- Transport stage: Because of lightweight design, U53SD is lighter than N51V. It could contribute a little reducing rate in this stage.

2.3. Offsetting Residual Carbon Footprint

ASUSTeK offset residual Carbon Footprint of U53SD through purchased carbon offset, the detailed information regarding offsetting as follows:

Description of the Offset Project

It was Wind Power Project by Priyadarshini Polysacks Ltd. in Maharashtra. Priyadarshini Polysacks Ltd. is a well known name in India in the manufacturing & supplying of woven poly sacks. PPL has set up this wind power project in the State of Maharashtra. The project activity is located at Panumbre & Mandur villages. It is part of Shirala Taluka of Sangli district. The project site is popularly known as Gudepachgani. This project activity has total installed capacity of 2.4 MW. It consists of four wind turbines of 0.6 MW capacities each. Suzlon Energy Ltd. has provided wind turbine technology for this project activity.

Entity	ASUSTeK Computer Inc.		
Subject	U53SD notebook (all supplied quantities)		
Boundary	System boundary is the overall product life cycle: Manufacturing Stage: complete BOM Assembly Stage: ASUSTeK, OEM contractors Transportation Stage: analyze global sales and transport status Use Stage: use for 5 years Disposal Stage: including recycling route and processing procedure		
Standard for Carbon Footprint Inventory Assessment	PAS 2050:2008		
Estimated Emission (KgCO ₂ e) of Each Unit at Each Stage of Its Life Cycle	Stage in Life Cycle	Baseline Emission	Residual Emission
	Manufacturing	188.9	169
	Assembly	7.9	7.2
	Transport	151.8/117.6	146.6/113.6
	Use	95.1/169.1	70.5/124.7
	Disposal	4/0.52	3.4/0.45
Reduction Measures	<ol style="list-style-type: none"> 1. Replace plastic with natural bamboo materials to reduce carbon emission in manufacturing stage 2. Develop energy-saving software and hardware to reduce carbon emission in use stage 		
Offset Project	Wind Power Project by Priyadarshini Polysacks Ltd. in Maharashtra		
Offset information	http://mc.markit.com/br-reg/public/index.jsp?s=cr		
Date of Declaration of Carbon Neutrality Commitment	March 1, 2011		
Date to Achieve Carbon Neutrality	February 27, 2012		
Declaration website	http://csr.asus.com		
Contacts	K.Y. Wu Corporate Sustainability Office		
Telephone	+886-2-2894-3447		
Validation and Verification Method	Third Party Validation and Verification		
Validation and Verification Party	Det Norske Veritas (DNV)		

3. Verification of Carbon Neutrality

3.1. Information of Third Party Verification

This Declaration of Carbon Neutrality is verified according to “PAS 2060:2010 Specification for the Demonstration of Carbon Neutrality”.

- Subject of Carbon Neutrality:
ASUS Notebook Computer U53SD Series
- Verification Party:
Det Norske Veritas (DNV)

3.2. Contact Person of ASUS Carbon Neutrality

The responsible persons for compilation and maintenance of the declaration are as followed:

Tzershin Wu & Kenny Wu

Department: Corporate Sustainability Office

Address: No. 15 Li-Te Road, Peitou, Taipei City 112, Taiwan

Telephone: +886 2 2894 3447



VERIFICATION STATEMENT OF CARBON NEUTRALITY DECLARATION

Statement No. 00001-2012-CNM-TWN

Page 1 of 2

ASUSTeK Computer Inc.

initiate project of

Declaration of Achievement to Carbon Neutrality of U53SD Notebook

Scope of Verification

Det Norske Veritas (DNV) has been commissioned by ASUSTeK Computer Inc. to perform a Verification for the declaration of achievement to carbon neutrality of "U53SD Notebook Carbon Neutrality Project" (hereafter the "Project Activity").

Verification Criteria and Carbon Neutrality Programme

The Verification was performed on the basis of PAS 2060:2010, as well as PAS 2050:2008 for carbon footprint quantification, given to provide for consistent project operations, monitoring, reporting and declaration.

Verification Statement

It is DNV's opinion that with reasonable assurance the declaration of achievement to the Project Activity in Taiwan, ROC as described in the "Carbon Neutrality Report of U53SD Bamboo Series Notebook Computers" on 28 February 2012 is free from material discrepancies in accordance with PAS 2060: 2010.

Chun-Nan Lin
GHG Verifier
April 11, 2012

David Hsieh
District Manager
DNV Certification Taiwan

This Verification Opinion is based on the information made available to us and the engagement conditions detailed above. Hence, DNV cannot guarantee the accuracy or completeness of the information. DNV is not liable for the errors or omissions in this report.

4. Appendix

Checklist for QES supporting declaration of achievement of carbon neutrality

Item	PAS 2060	Pages
1	Define standard and methodology use to determine its GHG emissions reduction	9
2	Confirm that the methodology used was applied in accordance with its provisions and the principles set out in PAS 2060 were met	9
3	Provide justification for the selection of the methodologies chosen to quantify reductions in the carbon footprint, including all assumptions and calculations made and any assessments of uncertainty. (The methodology employed to quantify reductions shall be the same as that used to quantify the original carbon footprint. Should an alternative methodology be available that would reduce uncertainty and yield more accurate, consistent and reproducible results, then this may be used provided the original carbon footprint is re-quantified to the same methodology, for comparison purposes. Recalculated carbon footprints shall use the most recently available emission factors, ensuring that for purposes of comparison with the original calculation, any change in the factors used is taken into account)	6
4	Describe the means by which reductions have been achieved and any applicable assumptions or justifications	6
5	Ensure that there has been no change to the definition of the subject (The entity shall ensure that the definition of the subject remains unchanged through each and every stage of the methodology. In the event that material change to the subject occurs, the sequence shall be re-started on the basis of a newly defined subject.)	9
6	Describe the actual reductions achieved in absolute and intensity terms and as a percentage of the original carbon footprint. (Quantified GHG emissions reductions shall be expressed in absolute terms and shall relate to the application period selected and/or shall be expressed in emission intensity terms (e.g. per specified unit of product or instance of service))	9
7	State the baseline/qualification date	9
8	Record the percentage economic growth rate for the given application period used as a threshold for recognising reductions in intensity terms	NA
9	Provide an explanation for circumstances where a GHG reduction in intensity terms is accompanied by an increase in absolute terms for the determined subject	NA
10	Select and document the standard and methodology used to achieve carbon offset	9
11	Confirm that:	9

	a 、 Offsets purchased or allowance credits surrendered represent genuine, additional GHG emission reductions elsewhere	
	b 、 Projects involved in delivering offsets meet the criteria of additionality, permanence, leakage and double counting. (See the WRI Greenhouse Gas Protocol for definitions of additionality, permanence, leakage and double counting)	
	c 、 Carbon offsets are verified by an independent third party verifier	
	d 、 Credits from Carbon offset projects are only issued after the emission reduction has taken place	
	e 、 Credits from Carbon offset projects are retired within 12 months from the date of the declaration of achievement	
	f 、 Credits from Carbon offset projects are supported by publically available project documentation on a registry which shall provide information about the offset project, quantification methodology and validation and verification procedures	
	g 、 Credits from Carbon offset projects are stored and retired in an independent and credible registry	
12	Document the quantity of GHG emissions offset and the type and nature of offsets actually purchased including the number and type of credits used and the time period over which credits were generated including: a 、 Which GHG emissions have been offset. b 、 The actual amount of carbon offset. c 、 The type of offset and projects involved. d 、 The number and type of carbon offset credits used and the time period over which the credits have been generated. e 、 Information regarding the retirement/cancellation of carbon offset credits to prevent their use by others including a link to the registry where the offset has been retired.	9
13	Specify the type of conformity assessment: a 、 independent third party certification b 、 other party validation c 、 self validation	✓
14	Include statements of validation where declarations of achievement of carbon neutrality are validated by a third party certifier or second party organizations.	✓
15	Date the QES and have it signed by the senior representative of the entity concerned (e.g. CEO of a corporation; Divisional Director, where the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group)	✓

16	Make QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g. via websites)	✓
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QES openness and clarity – Entities should satisfy themselves that the
QES

1	Does not suggest a reduction which does not exist, either directly or by implication	✓
2	Is not presented in a manner which implies that the declaration is endorsed or certified by an independent third party organization when it is not	✓
3	Is not likely to be misinterpreted or be misleading as a result of the omission of relevant facts	✓
4	Is readily available to any interested party	✓