



**Approved baseline and monitoring methodology/
methodological tool revision recommendation form
(Version 02.0)**

INFORMATION TO BE COMPLETED BY PANEL/ WG

Date and number of Panel/ WG meeting:	21–24 October 2014/MP 65
Title/Subject of the request for revision:	The balance method for the measurement of FCC _j (Fraction of total carbon content in waste type j) and FFC _j (Fraction of fossil carbon in total content of waste type j)
Reference number of the request for revision:	AM_REV_0253
Exact reference (number, title and version) of the methodology or methodological tool to which the request for revision applies:	ACM0022 “Alternative waste treatment process --- Version 1.0.0”
Summary of the request for revision:	
<p>Original text from PP/Stakeholder:</p> <p>ACM0022 ver1.0.0 requires the monitoring of the parameter FFC_j (Fraction of fossil carbon in total content of waste type j). It also provides guide of the parameter FCC_j (Fraction of total carbon content in waste type j).</p> <p>It gives the instruction of the measurement of FFC_j, which is the following standards, or similar national or international standards:</p> <ul style="list-style-type: none"> • ASTM D6866: “Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis”; • ASTM D7459: “Standard Practice for Collection of Integrated Samples for the Speciation of Biomass (Biogenic) and Fossil Carbon Dioxide Emitted from Stationary Emissions Sources”. <p>Only one laboratory world-wide is currently capable to imply the test according to ASTM D6866 or ASTM D7459.</p> <p>The Revision request is made to include the so-called Balance method into the eligible list of the measurement of FFC_j and FCC_j. This revision will provide the Project Participants and stakeholders one more choice to measure the parameter FFC_j and FCC_j, which is named as the Balance method.</p> <p>The Balance method was first published in the academic article <i>A New Method to Determine the Ratio of Electricity Production from Fossil and Biogenic Sources in Waste-to-Energy Plants</i>.¹ The details of the measurement procedures are presented in the Appendix 2 of ACM0022 revised version.</p> <p><i>Background:</i></p> <p>Sorting the wastes into defined fractions of fossil organic and biogenic waste components is important to determine the project emissions of CO₂ from combustion of the waste. The scientists from Vienna University of Technology have developed a new method to measure the fraction of fossil carbon and biogenic carbon, which is named as the Balance method.</p> <p>The Balance method allows determination of the following parameters in mixed wastes:</p> <ul style="list-style-type: none"> - The content of fossil organic carbon in waste; - The content of biogenic carbon in waste; - The content of total carbon in waste; 	

¹ Johann Fellner, Oliver Cencic, and Helmut Rechberger. “A new method to determine the ratio of electricity production from fossil and biogenic sources in waste-to-energy plants.” *Environ. Sic. Technol* 41(2007): 2579-2586.

- The energy content of biomass and the ratio of energy originating from biomass;
- The energy content of fossil organic matter and the ratio of energy originating from fossil matter
- The amounts of biogenic and fossil CO₂ emission;

The Balance method has originally been developed to calculate the portion of electricity produced by renewable materials in waste. Its background is that European Union requires the operators of waste-to-energy (WtE) plants to report the amount of electricity that is produced from the renewable sources in the waste feed.

Acceptance of the result:

With the use of software BIOMA2 developed by Vienna University of Technology, FFCj shall be calculated following the Balance method.

Balance method and BIOMA have been applied in 10 WtE plants in Austria, 3 WtE plants in Sweden, 3 WtE plants in Germany, 3 WtE plants in Switzerland, 3 WtE plants in Belgium, 1 WtE in France and 7 WtE plants in Denmark.

The result is accepted by Authority for Electricity Labelling (Austria), Regional Authority for Stockholm (Sweden), Environmental Protection Agency (Switzerland), Public Waste Agency (Belgium), Danish Energy Agency (Denmark) and UK Energy Authority (UK).

Recommended decision to the Board on the request for revision

- ☒ Approve the proposed revised methodology or methodological tool ("A case")
- ☐ Reject the proposed revised methodology or methodological tool ("C case")

Type of the revision if the recommendation is A case

- ☒ The revision is a major revision
- ☐ The revision is a minor revision

Reasons for rejection if the recommendation is C case

Not applicable.

Any other issues arising from the request for revision

Not applicable.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	18 July 2013	Revised to remove the row "Date and signature of the chair and vice chair of Panel/WG"
01.0	4 July 2013	Initial publication. This document supersedes and replaces the following documents: <ul style="list-style-type: none">• Recommendation form for Small Scale Methodologies (F-CDM-SSCwg) (Version 01.1)• Recommendation Form for Small Scale A/R Methodologies and Procedures (F-CDM-SSC-AR) (Version 01.1)
Decision Class: Regulatory Document Type: Form, Recommendation Business Function: Methodology Keywords: applying methodologies and tools		