

## **Annex 8.3 Elements on verification activities under the Industrial Processes Sector**

## CONTENTS

LIST OF TABLES .....	3
LIST OF FIGURES .....	4
Annex 8.3 Elements on verification activities under the Industrial Processes Sector .....	<b>Error!</b>
<b>Bookmark not defined.</b>	
1 EU-ETS versus National GHG Inventory activity data .....	5
1.1 Iron and Steel Production.....	5
1.2 Lime Production .....	8
1.3 Clincker production.....	11
1.4 Glass Production.....	13
1.5 Limestone and Dolomite Use.....	16
1.6 Soda Ash Use .....	17
2 Comments on the comparison between EU-ETS and NGHGI .....	19

## LIST OF TABLES

Table 1.1 The Pig Iron Production in the NGHGI and EU-ETS industrial Sector -----	5
Table 1.2 The Steel Production in the NGHGI and EU-ETS industrial Sector-----	6
Table 1.3 The CO <sub>2</sub> emissions from Iron and steel production in the NGHGI and EU-ETS industrial Sector for the 2012 year -----	7
Table 1.4 The Lime Production in the NGHGI and EU-ETS industrial Sector for-----	9
Table 1.5 The CO <sub>2</sub> emissions from Lime Production in the NGHGI and EU-ETS industrial Sector for the 2012 year-----	10
Table 1.6 The Clinker Production in the NGHGI and EU-ETS industrial Sector -----	11
Table 1.7 The CO <sub>2</sub> emissions from Clinker Production in the NGHGI and EU-ETS industrial Sector for the 2012 year-----	12
Table 1.8 The Glass Production in the NGHGI and EU-ETS industrial Sector -----	14
Table 1.9 The CO <sub>2</sub> emissions from Glass Production in the NGHGI and EU-ETS industrial Sector for the 2012 year-----	15
Table 1.10 The Limestone and Dolomite Use in the NGHGI and EU-ETS industrial Sector----	16
Table 1.11 The Soda Ash Use in the NGHGI and EU-ETS industrial Sector -----	18

## LIST OF FIGURES

Figure 1.1 The Pig Iron Production in the NGHGI and EU-ETS industrial Sector-----	6
Figure 1.2 The Steel Production in the NGHGI and EU-ETS industrial Sector for -----	7
Figure 1.3 The CO <sub>2</sub> emissions from Iron and steel Production in the NGHGI and EU-ETS industrial Sector for the 2012 year -----	8
Figure 1.4 The Lime Production in the NGHGI and EU-ETS industrial Sector-----	9
Figure 1.5 The CO <sub>2</sub> emissions from lime production in the NGHGI and EU-ETS industrial Sector for the 2012 year-----	10
Figure 1.6 The Clinker Production in the NGHGI and EU-ETS industrial Sector -----	12
Figure 1.7 The CO <sub>2</sub> emissions from Clinker Production in the NGHGI and EU-ETS industrial Sector for the 2012 year-----	13
Figure 1.8 The Glass Production in the NGHGI and EU-ETS industrial Sector -----	14
Figure 1.9 The CO <sub>2</sub> emissions from Glass Production in the NGHGI and EU-ETS industrial Sector for the 2012 year-----	15
Figure 1.10 The Limestone and Dolomite Use in the NGHGI and EU-ETS industrial Sector ---	17
Figure 1.11 The Soda Ash Use in the NGHGI and EU-ETS industrial Sector -----	18

## 1 EU-ETS versus National GHG Inventory activity data

For the Industrial processes the comparison between the NGHGI list and EU-ETS list it was done based on raw material consumption (eg. limestone and dolomite use) and production (eg. cement, lime, glass, iron and steel production).

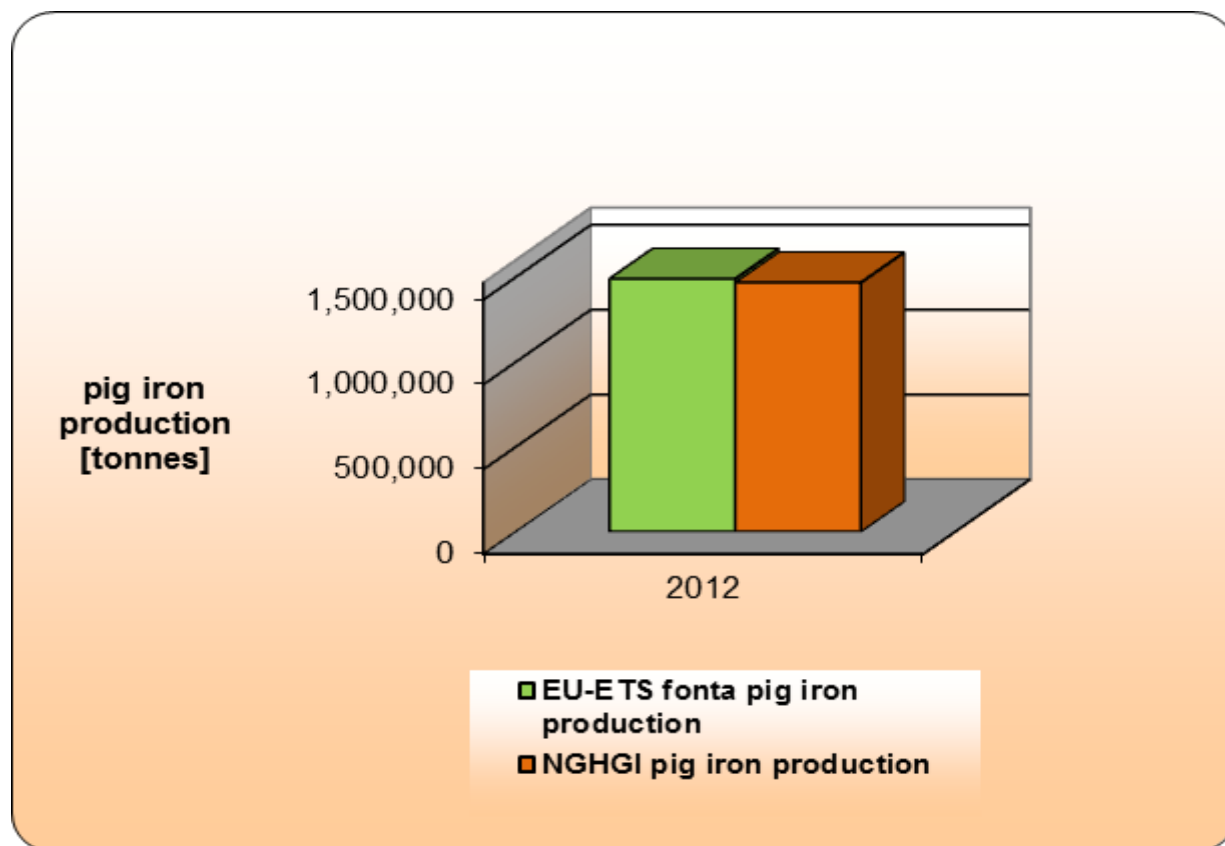
### 1.1 Iron and Steel Production

- ◆ In accordance with EU-ETS methodology, the data used are coming from the installations with a production capacity exceeding 2.5 tonnes of pig iron or steel /hour. CO<sub>2</sub> emissions are calculated based on mass balance (inputs minus outputs);
- ◆ For NGHGI the data regarding the national production of iron and steel was used, provided directly by the companies. CO<sub>2</sub> emissions are calculated based on iron and steel production.

***Table 1.1 The Pig Iron Production in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***

<b>Pig Iron Production (tonnes)</b>	<b>2012</b>
EU - ETS data	1,491,153.44
NGHGI data	1,468,155.20

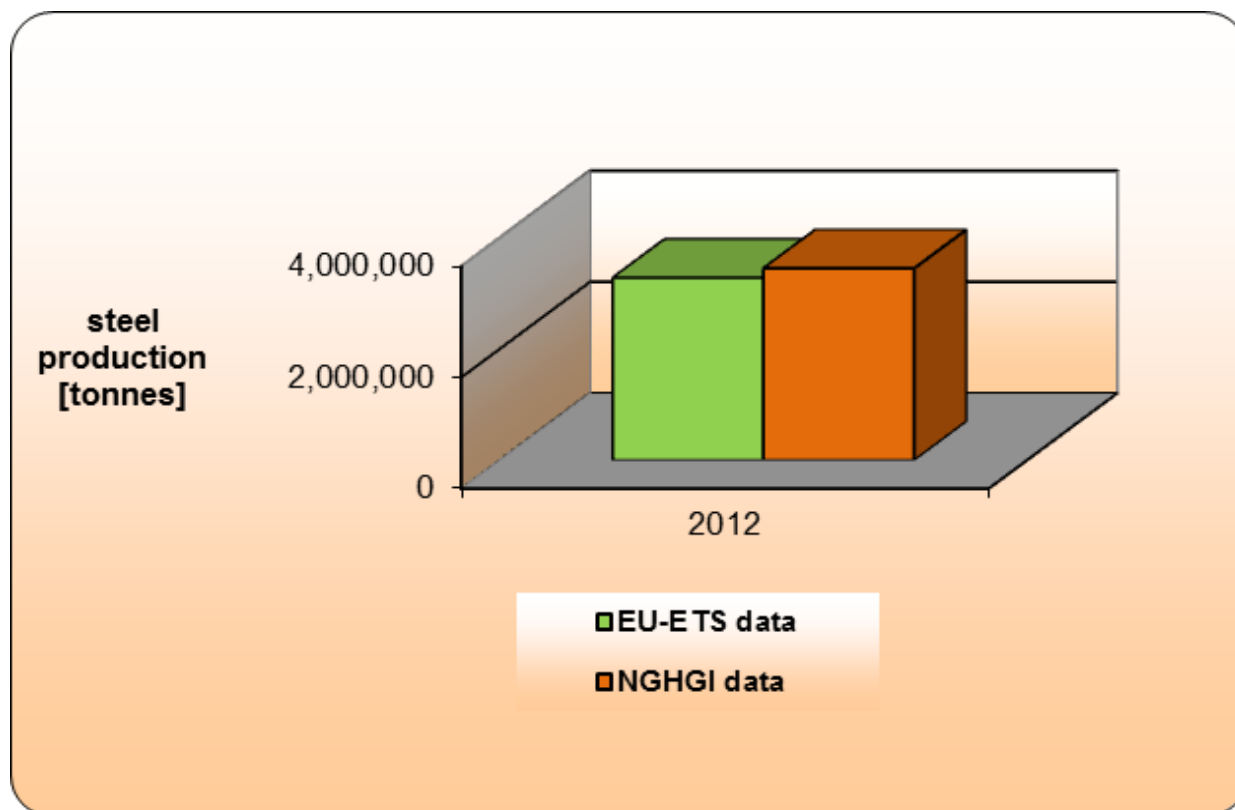
***Figure 1.1 The Pig Iron Production in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***



***Table 1.2 The Steel Production in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***

Steel Production (tonnes)	2012
EU - ETS data	3,278,869.99
NGHGI - data	3,447,428.99

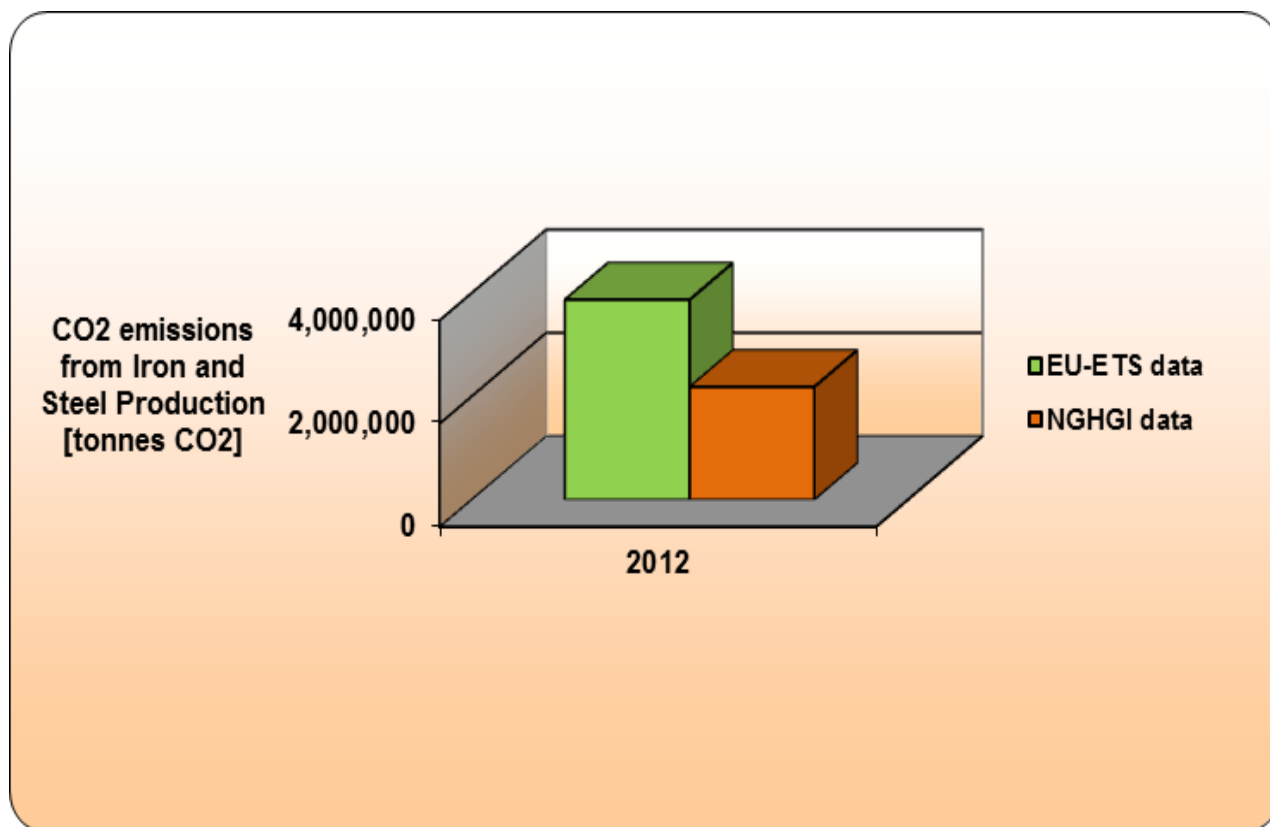
***Figure 1.2 The Steel Production in the NGHGI and EU-ETS industrial Sector for the 2012 year***



***Table 1.3 The CO<sub>2</sub> emissions from Iron and steel production in the NGHGI and EU-ETS industrial Sector for the 2012 year***

Iron and Steel Production (tonnes CO <sub>2</sub> )	2012
EU - ETS data	3,870,677.00
NGHGI data	2,184,729.00

**Figure 1.3 The CO<sub>2</sub> emissions from Iron and steel Production in the NGHGI and EU-ETS industrial Sector for the 2012 year**



## **1.2 Lime Production**

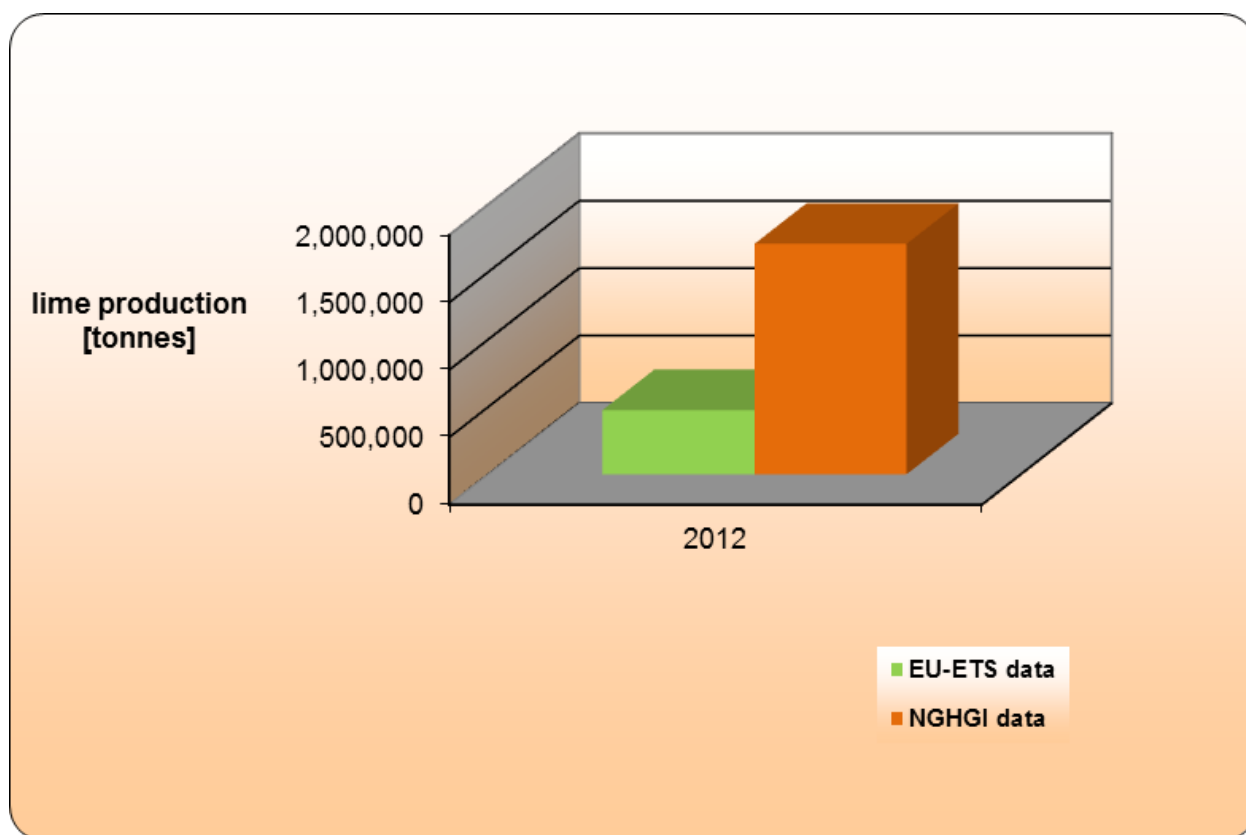
- ◆ In accordance with EU-ETS methodology, the data used are coming from the installations with a production capacity exceeding 50 tonnes of lime /day. CO<sub>2</sub> emissions are calculated based on consumption of raw materials (one operator reported CO<sub>2</sub> emissions by production of lime);
- ◆ For NGHGI the data regarding the national production of lime was used, provided by the National Institute for Statistics (including captive lime production). CO<sub>2</sub> emissions are calculated based on production of lime.



***Table 1.4 The Lime Production in the NGHGI and EU-ETS industrial Sector for the 2012 year***

Lime Production (tonnes)	2012
EU-ETS data	475,010.00
NGHGI data	1,708,251.00

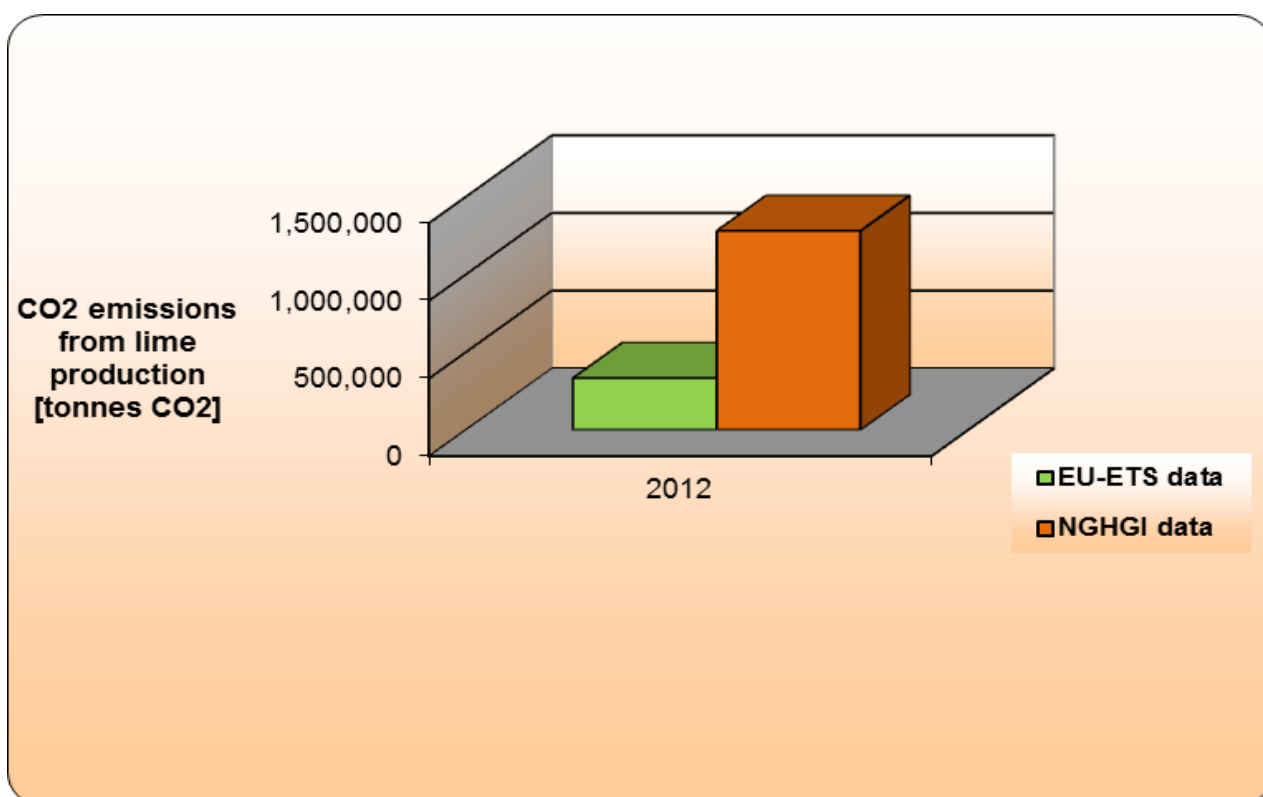
***Figure 1.4 The Lime Production in the NGHGI and EU-ETS industrial Sector for the 2012 year***



***Table 1.5 The CO<sub>2</sub> emissions from Lime Production in the NGHGI and EU-ETS industrial Sector for the 2012 year***

CO <sub>2</sub> emissions from Lime production (tonnes)	2012
EU-ETS data	334,130.70
NGHGI data	1,281,215.86

***Figure 1.5 The CO<sub>2</sub> emissions from lime production in the NGHGI and EU-ETS industrial Sector for the 2012 year***



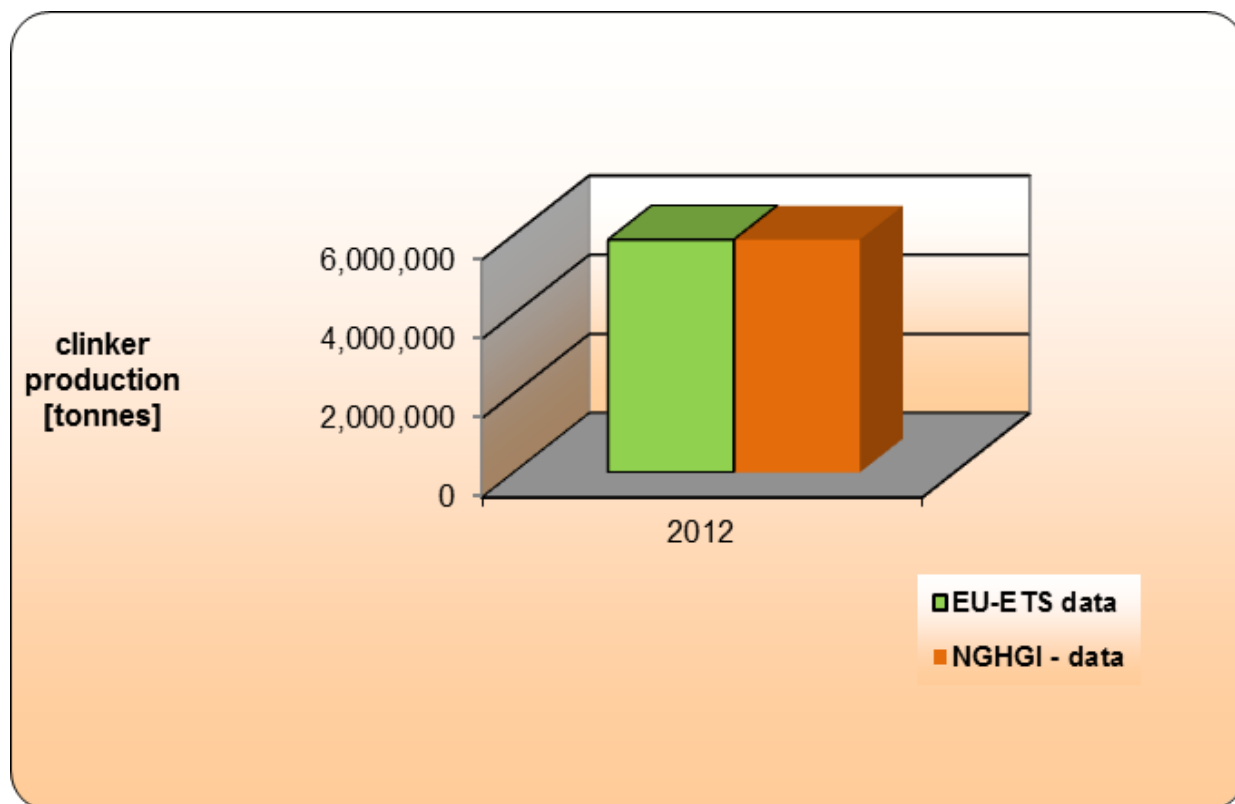
### 1.3 Clinker production

- ◆ In accordance with EU-ETS methodology, the data used are coming from the installations with a production capacity exceeding > 500 tonnes of clinker /day. CO<sub>2</sub> emissions are calculated based on clinker production;
- ◆ For NGHGI the data regarding the national production of clinker was used, provided directly by the companies. CO<sub>2</sub> emissions are calculated based on clinker production.

***Table 1.6 The Clinker Production in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***

<b>Clinker Production (tonnes)</b>	<b>2012</b>
EU-ETS data	5,873,601.418
NGHGI data	5,873,601.478

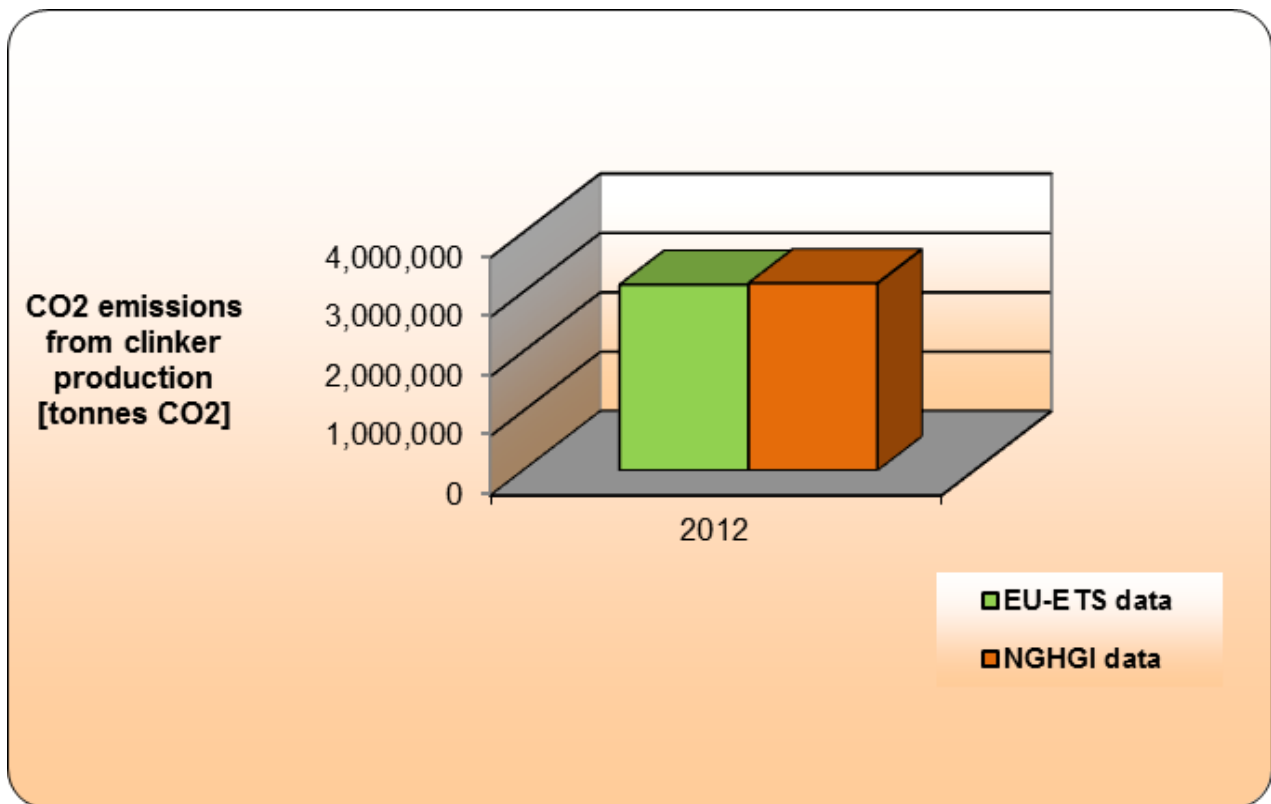
**Figure 1.6 The Clinker Production in the NGHGI and EU-ETS industrial Sector  
for 2012 year**



**Table 1.7 The CO<sub>2</sub> emissions from Clinker Production in the NGHGI and EU-ETS industrial  
Sector for the 2012 year**

CO <sub>2</sub> emissions from Clinker Production (tonnes CO <sub>2</sub> )	2012
EU-ETS data	3,124,617.39
NGHGI data	3,150,250.28

**Figure 1.7 The CO<sub>2</sub> emissions from Clinker Production in the NGHGI and EU-ETS industrial Sector for the 2012 year**



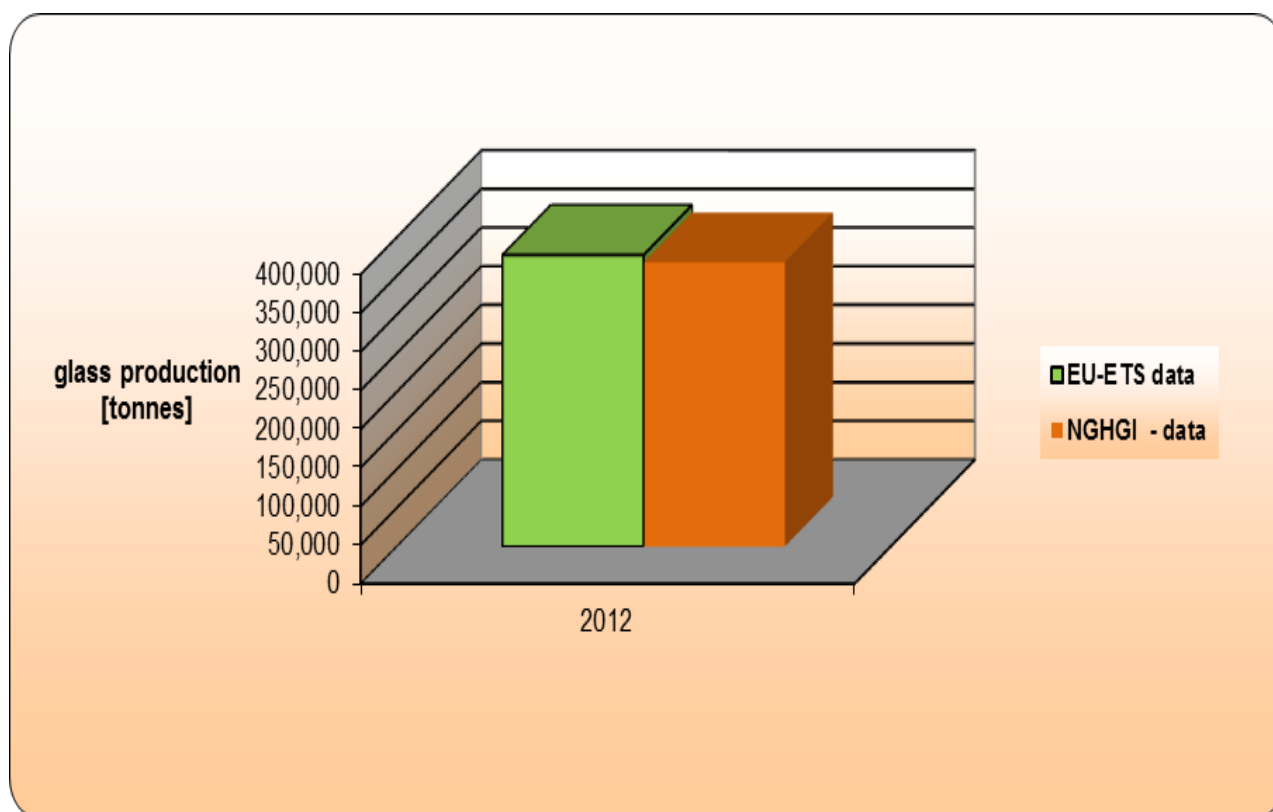
#### **1.4 Glass Production**

- ◆ In accordance with EU-ETS methodology, the data used are coming from the installations with a production capacity exceeding 20 tonnes of glass /day. CO<sub>2</sub> emissions are calculated based on the consumption of raw materials (limestone, dolomite, soda ash);
- ◆ For NGHGI the data regarding the national production of glass was used, provided by the National Institute for Statistics. CO<sub>2</sub> emissions are calculated based on the production of glass.

***Table 1.8 The Glass Production in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***

<b>Glass Production (tonnes)</b>	<b>2012</b>
EU-ETS data	376,976.00
NGHGI data	367,650.00

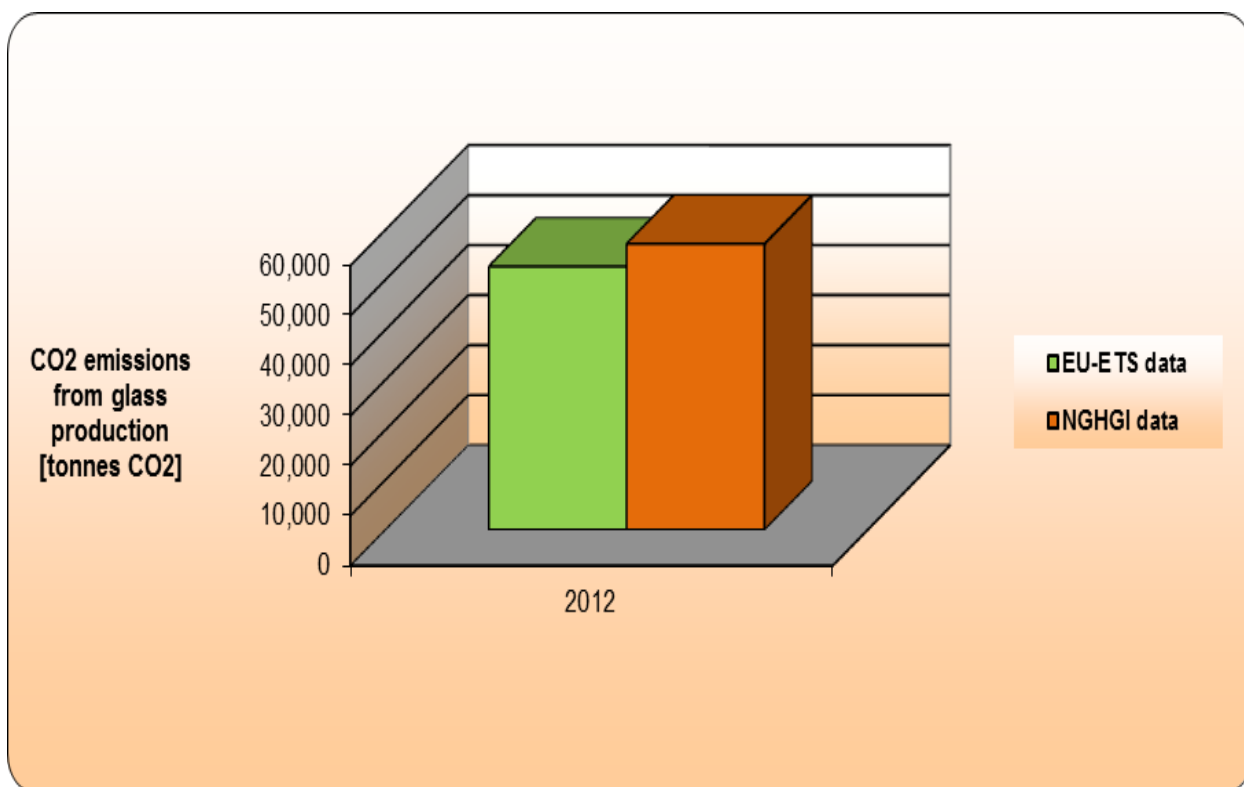
***Figure 1.8 The Glass Production in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***



**Table 1.9 The CO<sub>2</sub> emissions from Glass Production in the NGHGI and EU-ETS industrial Sector for the 2012 year**

<b>CO<sub>2</sub> emissions from Glass Production (tonnes CO<sub>2</sub>)</b>	<b>2012</b>
EU-ETS data	52,625.93
NGHGI data	57,140.30

**Figure 1.9 The CO<sub>2</sub> emissions from Glass Production in the NGHGI and EU-ETS industrial Sector for the 2012 year**



## 1.5 Limestone and Dolomite Use

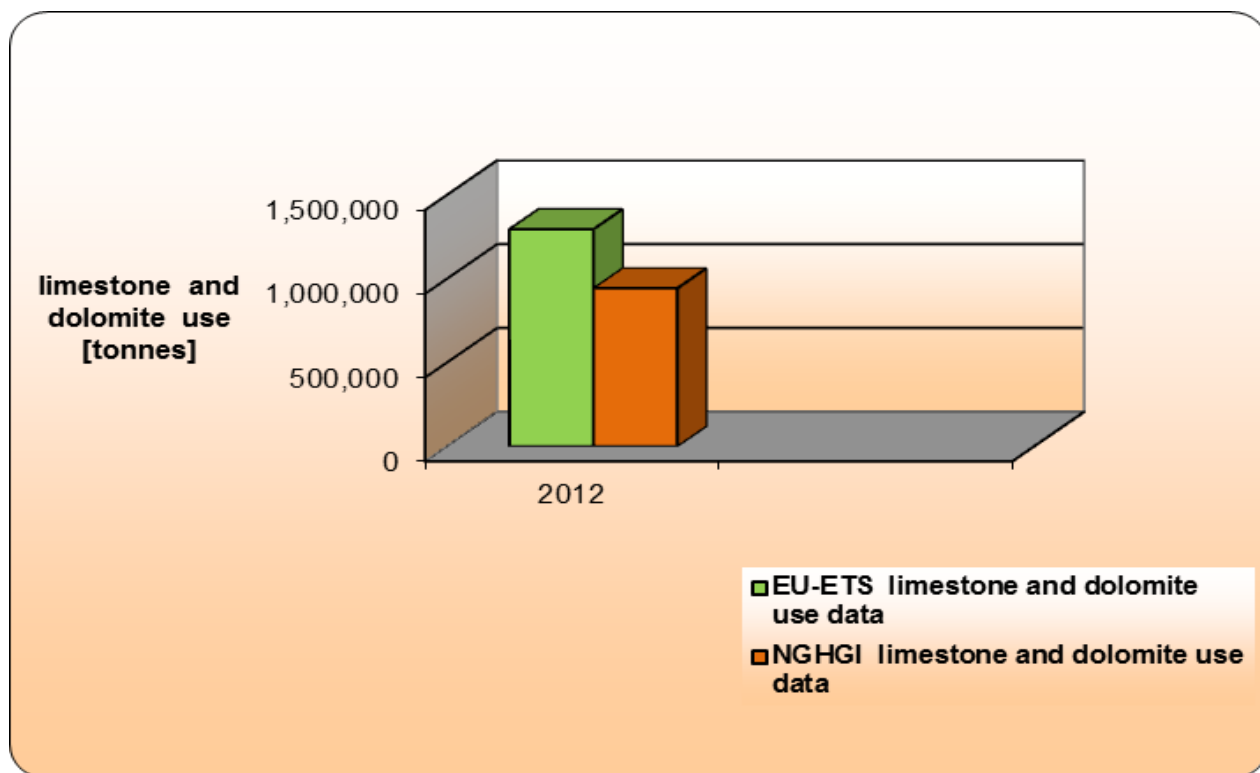
- ◆ In accordance with EU-ETS methodology, the data regarding the limestone and dolomite use are coming from the cement, lime, paper, sugar, ceramics, iron and steel production;
- ◆ For NGHGI the data provide from iron and steel producers, pulp and paper producers, sugar mills producers, ceramics plants.

***Table 1.10 The Limestone and Dolomite Use in the NGHGI and EU-ETS industrial Sector for the 2012 year***

<b>Limestone and Dolomite Use (tonnes)</b>	<b>2012</b>
EU-ETS data	1,295,986.79
NGHGI data	943,929.81



***Figure 1.10 The Limestone and Dolomite Use in the NGHGI and EU-ETS industrial Sector for the 2012 year***



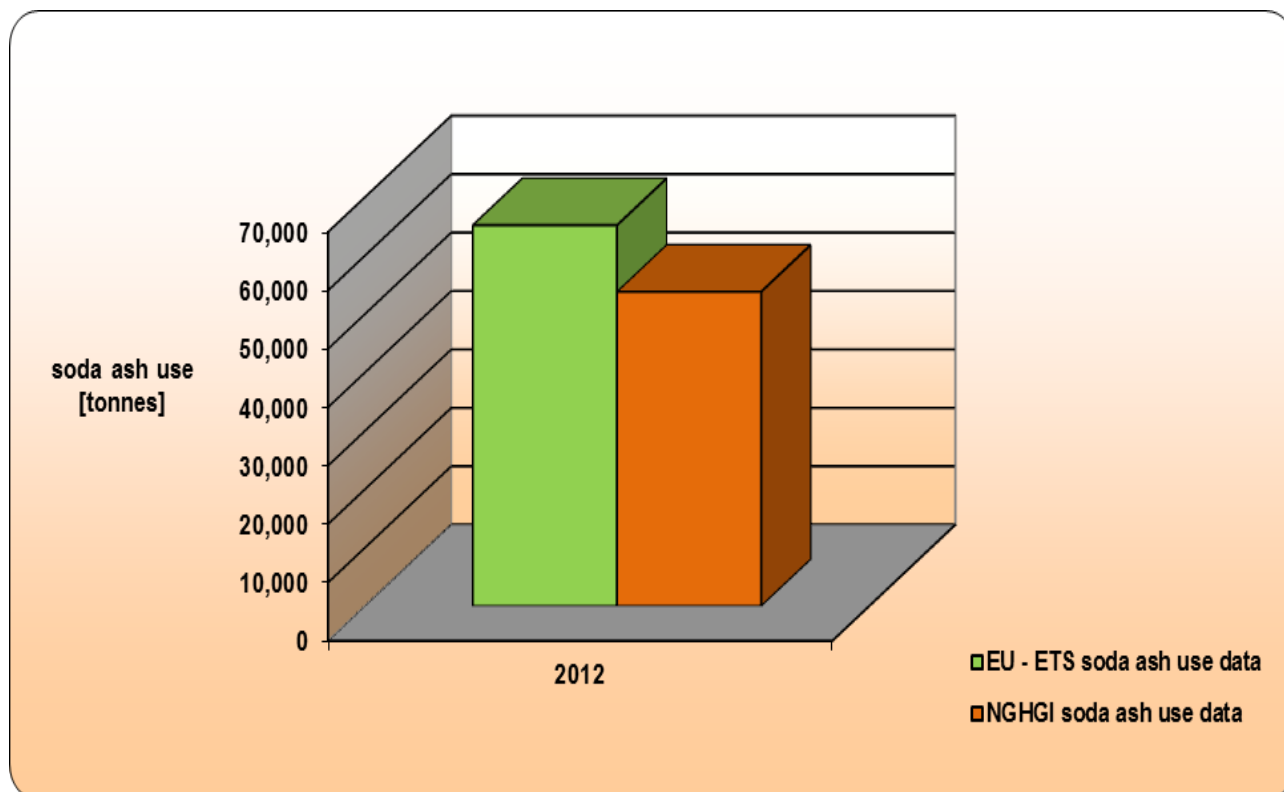
## **1.6 Soda Ash Use**

- ◆ In accordance with EU-ETS methodology , the data regarding soda ash use, are coming from the installations who produce the glass with a production capacity exceeding 20 tonnes of glass /day;
- ◆ For NGHGI the data regarding the soda ash use are provide from pulp and paper producers, chemicals producers, flue gas desulphurization, water treatment, soap and detergents producers.

***Table 1.11 The Soda Ash Use in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***

Soda Ash Use (tonnes)	2012
EU-ETS data	65,194.89
NGHGI data	53,806,72

***Figure 1.11 The Soda Ash Use in the NGHGI and EU-ETS industrial Sector  
for the 2012 year***



## 2 Comments on the comparison between EU-ETS and NGHGI

- ✚ For the **Clinker Production**, the activity data (AD) and CO<sub>2</sub> emissions are similar (NGHGI list and EU-ETS list) because in both cases are calculated based on clinker production.
- ✚ For the **Iron and Steel Production**, the AD are similar and the CO<sub>2</sub> emissions are different (NGHGI list and EU-ETS list) because in the EU-ETS methodology case the production capacity was applied and CO<sub>2</sub> emissions are calculated based on mass balance (inputs minus outputs) and for NGHGI CO<sub>2</sub> emissions are calculated based on iron and steel production (provided directly by the companies).
- ✚ For the **Glass Production**, the AD are similar and the CO<sub>2</sub> emissions are different (NGHGI list and EU-ETS list) because in the EU-ETS methodology case the production capacity was applied and CO<sub>2</sub> emissions are calculated based on the consumption of raw materials (limestone, dolomite, soda ash) and for NGHGI CO<sub>2</sub> emissions are calculated based on the production of glass.
- ✚ For the **Lime Production**, the AD and the CO<sub>2</sub> emissions are different (NGHGI list and EU-ETS list) because in the EU-ETS methodology case the production capacity was applied. For NGHGI CO<sub>2</sub> emissions are calculated based on production of lime.
- ✚ For the **Limestone and Dolomite Use**, AD are different (NGHGI list and EU-ETS list) because in the EU-ETS methodology case the limestone and dolomite consumption was used, the AD coming from the lime, paper, sugar, iron and steel production. For NGHGI the data provide from iron and steel producers, pulp and paper producers, sugar mills producers, ceramics plants.

✚ For the **Soda Ash Use**, the AD are different (NGHGI list and EU-ETS list) because in the EU-ETS methodology case the production capacity of glass was applied. For NGHGI the data regarding the soda ash use are provide from pulp and paper producers, chemicals producers, flue gas desulphurization, water treatment, soap and detergents producers.