

PROJECT FOR MONITORING AND REPORTING OF CO₂ EMISSIONS ACCORDING TO THE EU EMISSIONS TRADING SCHEME (ETS) FOR GREENHOUSE GASES

In connection to the Bulgarian participation in the Eu ETS in 2007 and in the next period 2008-2012, and, as a response to the regulations of Article 131 of the Bulgarian Environmental Law, METASKILL Ltd. developed projects for monitoring of GHG emissions and implemented it into more than 20 enterprises of various activities, incl. district heating companies and electric power stations. The projects create the document basis for calculation of emissions, establish the monitoring system and introduce the necessary software, taking into account the specifics of each factory. These systems are used efficiently after the period of author's supervision in the early 2007.

The goal of the project is to ensure everything necessary for:

- monitoring and reporting of emissions,
- successful preparation of the yearly report,
- successful and easy verification of the emissions.

Our general project scheme takes into account the national regulations as well as all the European Directives in the field, as 2003/87/EC, and, Decision 156/29.01.2004, updated by the **Commission Decision of 18 July 2007 C(2007/589/EC) establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council (notified under document number C(2007) 3416)**. The Project reflects also the provisions of other European publications as those of the British, Irish and Dutch environmental agencies, etc., as well as the US "A Corporate Accounting and Reporting Standard", "The GHG Protocol for Project Accounting" (World Resources Institute, 2005), and the international standards **ISO 14064-1, ISO 14064-2 и ISO 14064-3 и ISO 14065**.

PROJECT DESCRIPTION

According to the national and the European regulations an operator-participant in the EU ETS should develop a system handling GHG monitoring data and have a Plan for monitoring of CO₂ emissions. Both this plan and the data handling system should be a result of a Project for such a system, incorporating information structure and a software tool.

The typical contents of our Project is the following:.

CONTENTS of the project for GHG monitoring and reporting

- Enterprise and process description, oriented towards verifiers
- Enterprise emission profile,
- Source analysis review of measurement tools,
- Mathematical description of methodology,
- Uncertainty analysis,
- Risk analysis,
- Material flow analysis,
- Structure of the information system, incl organisational requirements,
- Description of the applied software,
- Conclusions and recommendations on specific monitoring problems,
- Attachments, incl. software installation CD

The Project contains all the information needed for the verification process, for preparation of the annual report, and, specifies the monitoring system as a data handling system in all its aspects.

The project includes development of monitoring and reporting software

The applied software CalEm-C is oriented to CO₂ calculation. It cannot be looked at as a stand alone product, it is rather a result of the project, based on the project.

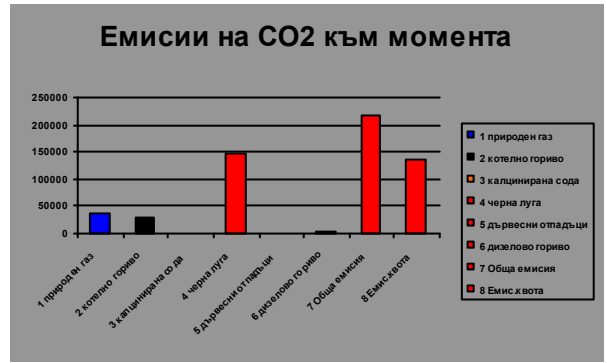
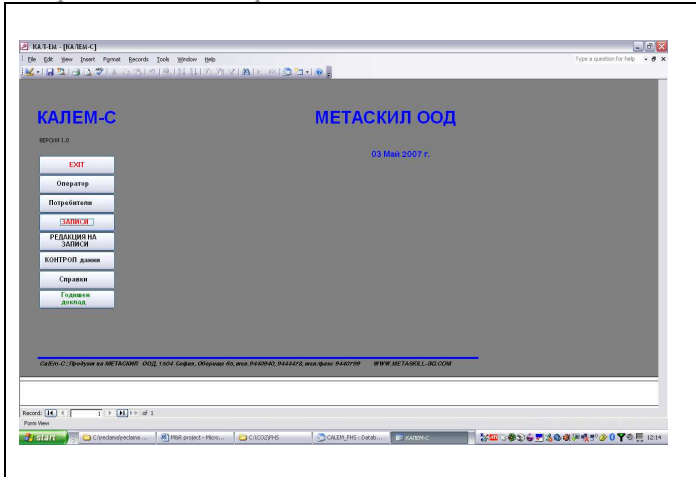
The functions of the software are the following:

- support of actual operator data,
- maintenance of a register of records for emission calculation,
- procedures for error prevention,
- support of a document register, connecting records to documents,
- data editing and checking,
- reports for current state,
- creating tables for the annual report, according to the standard format.

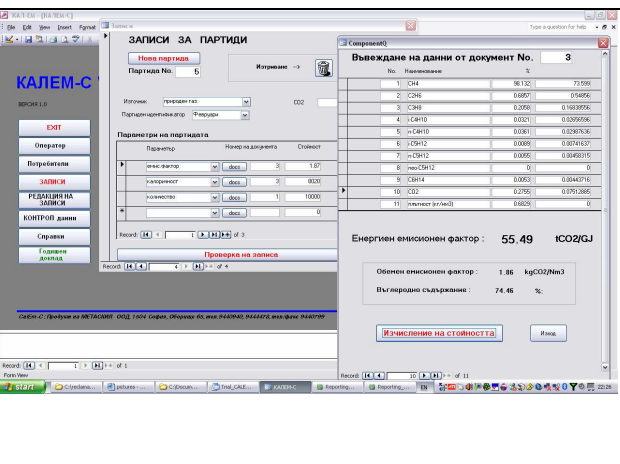
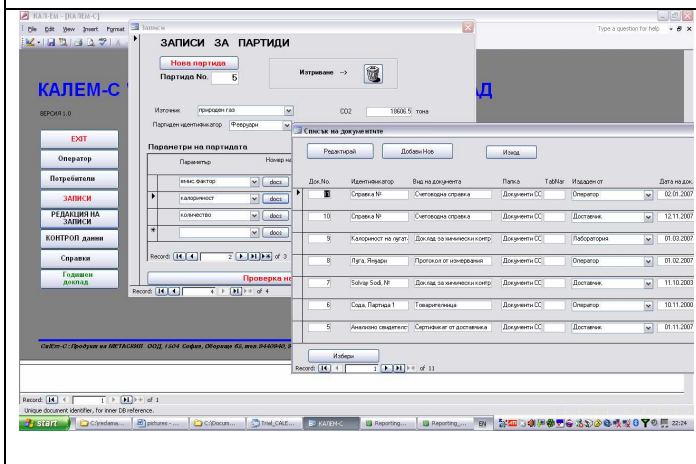
The CalEm-C applied software tool is a small MS ACCESS 2003 database in the environment of WINDOWS 200/XP.

Similarly to any accounting system, there is a possibility through a suitable indexing to make easy connection between system records and real documents, containing the data, and this is the most important feature of the tool in comparison to others.

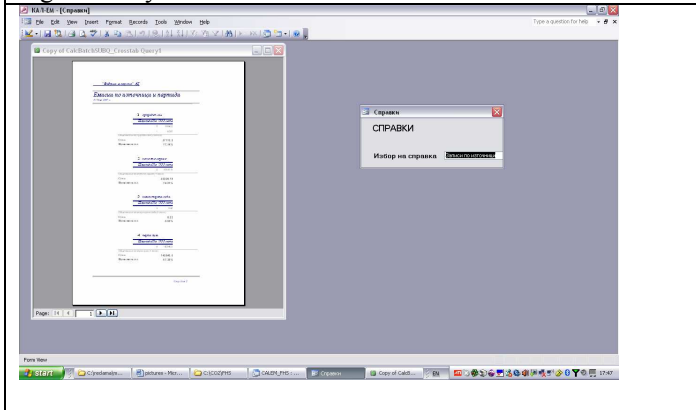
Some sample system windows are given below:



The main menu contains buttons for the main functions. The graphics shows visually the current state.



A major function is data entry. The data refer to material/fuel batches. A batch has parameters, used to calculate the emission for the entire batch. The values of these parameters should be present in documents, that are described and registered by a number of attributes.



Източник	Емисии CO2 (kg)	Процентност (%)
1 природен газ	3714	0.84
2 котелно гориво	3030	0.71
3 калцинирана сода	0	0.00
4 черна луга	14907	3.42
5 дървесни отпадъци	4	0.00
6 дизелово гориво	3173	0.74
Обща емисия	216583	6.91 %
	14966	

Various reports can be generated. There are operative reports (for monitoring the current state) and the normative reports (specified in the regulations for the annual report).

REFERENCES

Projects for monitoring of CO₂, developed and implemented in 2006-2007			
No.	Company	Location	Plant/Process
1	"Toplofikacia-Sofia" plc	Sofia	"Sofia east" electric power plant
2	"Mondi Packaging Stambolijsky "	Stambolijsky	Pulp and paper factory
3	"Kostenec – HHI"	Kostenec	Paper factory
4	"PROGRESS"	Stara Zagora	Metallurgy Plant
5	"RUBIN"	Pleven	Glass Plant
6	"Arsenal"	Kasanlik	Machine Producing Factory
7	"Toplofikacia-Varna"	Varna	District heating plant
8	"Toplofikacia-Gabrovo"	Gabrovo	Coal firing Electric Power Plant
9	" Toplofikacia-Bourgass"	Bourgass	District heating plant
10	"Mariza 3"	Dimitrovgrad	Coal firing Electric Power Plant
11	"Brikel"	Galabovo	Coal firing Electric Power Plant
12	"Bulkom Plus" Ltd.	Plovdiv	Greenhouse plant
13	"Private vegetable producer"-	Banja	Greenhouse plant
14	"Toplofikacia-Plovdiv" - EVN	Plovdiv	"Plovdiv North" electric power plant
15	" Toplofikacia-Plovdiv" - EVN	Plovdiv	District heating plant – Plovdiv South
16	"Toplofikacia-Sofia" plc	Sofia	"Sofia" electric power plant
17	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Люлин”
18	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Земляне”
19	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Овча купел 1”
20	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Овча купел 2”
21	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Х.Димитър”
22	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Левски Г”
23	"Toplofikacia-Sofia" plc	Sofia	District heating plant „Суха река”
24	TERA AD	Cherven Brjag	Ceramic factory