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Recommended monitoring procedures for the European plastics converting industry

Deliverable 4.2

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1 Short presentation of the EuPlastVoltage project

The plastics converting initiative

This action supports the overall objective of the EU and the IEE programme to foster energy efficiency. Furthermore, this action satisfies the project objectives of IEE Work Programme 2008 under the heading of “enabling policies and strategies”. This project enters in the European Council conclusions of March 2007, which identified energy efficiency as an essential part of the comprehensive strategy on climate change and energy, and stressed the needs to achieve the objective of a 20 % saving in EU energy consumption by 2020.

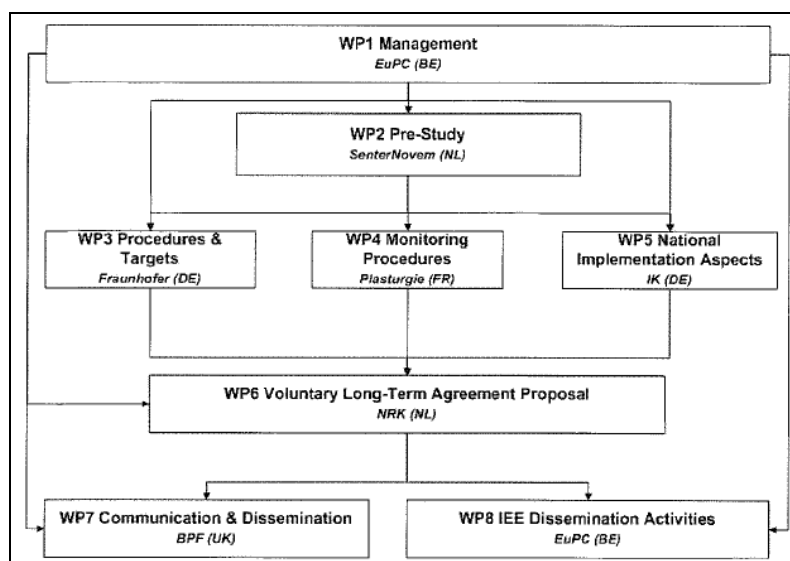
Moreover, this action reflects the secondary priorities as mentioned in the IEE area :

- Market transformation.
- Changing behaviour.
- Training
- Access capital.

In that context, the objective of the EuPlastVoltage project is to prepare and launch a voluntary long-term agreement on energy efficiency for the plastics converting industry. This initiative will bring together experience and best practice at a national and industry levels, with a view to stimulating a new long-term agreement at European level, resulting in a firm commitment by the sector.

Eleven partners ; mostly national plastics converters associations ; from eight European countries (Belgian, France, Germany, Hungary, Portugal, Spain, the Netherlands and the United Kingdom) will directly participate in this project. These countries are significant in the European plastics converting industry, thus they will act as ambassadors in the markets toward increased energy efficiency.

The activities can be summarised in the following work packages :



Major outputs and results

This action will result in the involvement of the whole European plastics converting industry in a voluntary agreement on energy efficiency. This project will have a direct impact on the sector's energy efficiency and thus will contribute to the EU objective of 20 % energy savings by 2020.

The action will serve as a precursor for the whole European industry and particularly for the SME sector, and will create spin-off effects :

- Other European industries are expected to follow the plastic converting example.
- At the human level, the employees of the targeted companies will be more motivated to achieve greater energy efficiency and in turn to increase energy efficiency in their private life.

A successful project

The success of this initiative will be demonstrated by a concrete, finalised and signed voluntary agreement on energy efficiency in the European plastics converting industry, with clear targets, a time schedule, an implementation plan and monitoring procedures.

2 Objectives of the work package

2.1 Work package overview

The present report deals with the development of the work package 4 (WP4) amongst the EuPlastVoltage project.

The goal of this WP4 is to provide the most cost efficient and reliable monitoring for the European plastics converting industry.

Regarding the structure of the EuPlastVoltage project, the work package 4 follows the pre-study of the whole project as realised during the work package 2 (WP2), which is an important input for the present work package, and has to exchange (use and develop) data and results with two others WP run in parallel : the work package 3 (WP3) "procedures and targets" and the work package 5 (WP5) "national implementation aspects". The deliverables of this WP will be used for the definition and the construction of the final voluntary long term agreement (VLTA) proposed in the work packages 6 (WP6), 7 (WP7) and 8 (WP8).

To be relevant, a primary outcome, as a deliverable, was created for the WP4 : to *"enable an efficient and realistic control of the energy savings realised within the plastics converters part of the project"*.

These results will surely be presented at a national and European level in order to present a clear overview and a description of the involvement level of the plastics converting industry.

The development of an involvement parameter will be a secondary outcome, but an important one, to place the VLTA as one of the best LTA for the European and national authorities.

2.2 Tasks and deliverables of the work package

To achieve the goal for this WP4, three tasks were defined. The present report is to be considered as deliverables for the first two of these three tasks.

First task : analysis of the state of the art in energy savings monitoring

This task aims at analysing what are the current best practices in energy saving monitoring. A matrix of the existing possibilities will have to be created (costs vs. precision). Also, the possibilities to establish compliance/non-compliance by companies and National Plastics Associations (NPAs) will be analysed. Existing monitoring procedures involving the sector aiming at other targets will also be taken into account.

The deliverable linked to this task is called "D 4.1 : state of the art in Energy savings monitoring".

This first deliverable is expected to be complete at the end of June, 2010.

Second task : design of energy efficiency monitoring procedures for the plastics converters

The most suitable method for the sector will be the achievement of this WP. The WP leader will choose the appropriate way of monitoring taking into account the particularities of the sector.

The deliverable linked to this task is called "D 4.2 : recommended monitoring procedures for the European plastics converting industry".

This second deliverable is expected to be complete at the end of June, 2010.

Third task : industry participation

The involvement of companies in this project is essential. Therefore, industries participation will have to be mobilised at national and European level. This involvement will be eased by the strong network of the national associations.

The deliverable linked to this task is called "D 4.3 : industry participation in the EuPlast VA".

This last deliverable is expected to be complete at the end of May, 2011.

3 Design of energy efficiency monitoring procedures for the plastics converters

3.1 Sources and inputs used for this work package

Logically, very few sources were used to create this deliverable as the work package leader has to present conclusions based on the deliverable D. 4.1. Identically to this later deliverable, the first conclusions and a beginning of best practices in procedures creation were discussed with EuPC and the others NPAs during a webinar the 9th of June 2010.

3.2 Description and particularities of the plastics converting sector

The future procedures need to be adapted to the particularities of the plastics converting industry. In order to avoid repetition with other WP, the objective of this chapter is to give an extract of the parameters to take in account in this deliverable.

Regarding the development of a long term agreement, and in general for every kind of environmental or safety action plan, the size of the structure part of the project is a critical issue.

The plastics converting industry, through NPAs, represents more than 50 000 companies and the major part of them are Small and Medium Enterprises (SMEs), between 10 to 200 employees in average. During the past two years, the production indices were in a stagnation phase followed by a very important contraction. In this respect, the investments capacity for the majority of SMEs fell even lower and that is an important point to keep in mind for this work package. In parallel, the energy costs increase. The race for energy savings became more motivating than before but in the same time, without investments possibilities. This later point is a warning as the EuPlasVoltage will have to promote technical advices, linked to investments, but more surely good housekeeping behaviour guidance in its energy savings action plan.

After this brief economic point, we must underline the lack of high specialisation in energy field available in SMEs. Only the biggest plastics converting group could hire energy specialist to run an energy management system. By this way, the production of all the tools in this WP, in the whole EuPlasVoltage programme, has to be "non-energy reduction specialist minded".

In this context, developing procedures targeting SMEs, the work package leader must go to the less costly solutions in terms of investments and time to be spent on monitoring.

3.3 First conclusions and requirements

“Success rules” :

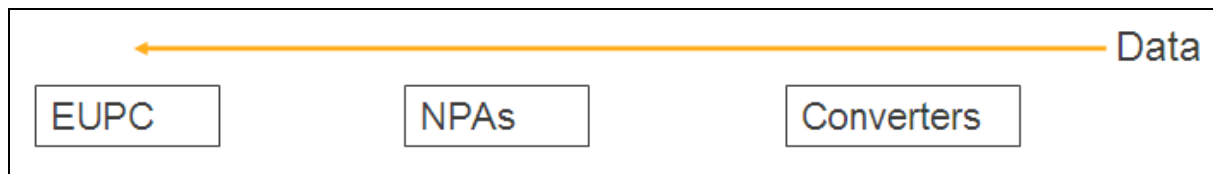
The chapter will gather the most important hypothesis to be followed in the next parts of this deliverable, in order to ensure the success of the monitoring system. As the work package is concerned by the VLTA monitoring, these best practices, hypothesis or advices won't deal only with converters but with the role played by NPAs and EuPC as well.

Every part of the “value chain” in the EuPlastVoltage will be involved in this monitoring process.

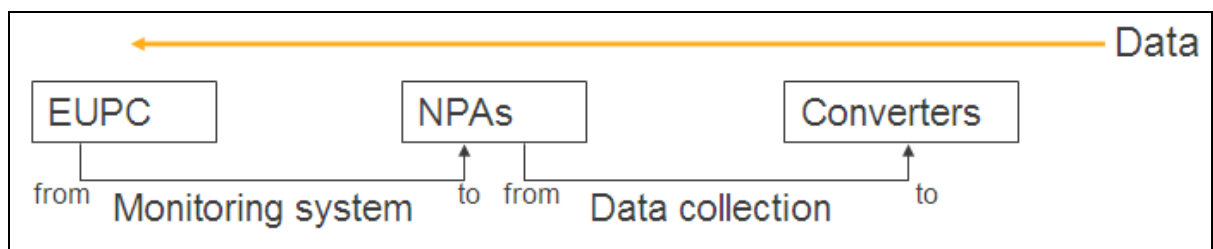
Chosen structure for the reporting

The sources of this choice are the deliverables of WP2, WP3 and the first one of this WP4.

The structure of the information chain will be :



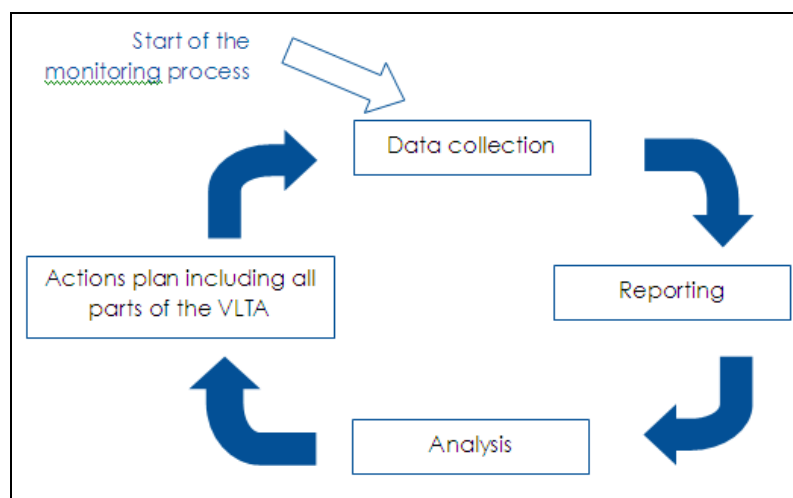
Using this chain in a monitoring process, we could describe the monitoring system of EuPlastVoltage as the following one :



Three chapters of this deliverable will be dedicated to a detailed presentation of this draw, in order to present the best suitable procedures :

- Data collection from the converters.
The addressed issues will be : data collection, compliance/non-compliance.
- Role played by NPAs.
The addressed issues will be : reporting, analysis and communication.
- EuPC's level.
The addressed issues will be : reporting, analysis and communication.

For the monitoring system mentioned in the reporting chain described above, the work package leader will use the four step monitoring systems proposed in the first deliverable of this work package :



3.3.1 Type of the EuPlastVoltage monitoring

The deliverable D 4.1 introduce a choice between two types of monitoring :

	Cost	Precision
Monitoring type I	X	XX
Monitoring type II	XXX	XXX

Legend :

- X : non-intensive effect or poor quality.
- XX : medium intensive effect or medium quality.
- XXX : high intensive effect or high quality.

Most of the plastics converting SMEs don't have energy specialist in their staff. The realisation of precise energy studies on plant required by a monitoring type II, in order to fill in the data collection, doesn't seem appropriate in our sector.

Moreover, even if an SME is fully adapted to realise this kind of analysis, the time needed to do so won't be found in the production planning or the commercial objectives. In other words, the chosen type of the monitoring must be the less time-costly one. This parameter describes perfectly the monitoring type I based on factual and easy collectable data.

Thus, the monitoring type I suits to the plastic converting sector and the EuPlastVoltage project.

3.3.2 Actors of the monitoring

The deliverable D 4.1 introduces a choice between three types of actors :

	Cost	Precision
Internal actor	X	XX *
External actor	XXX	XX *
Public authority	X	XX *

* : hypothesis of equal competence and precision

Legend :

- X : non-intensive effect or poor quality.
- XX : medium intensive effect or medium quality.
- XXX : high intensive effect or high quality.

Basically, the development of a VLTA is based on confidence. A converter will be part of a voluntary agreement if :

- He is the only and official actor responsible for his declaration during the data collection.
- Every steps of the monitoring process are managed by plastics converting association (NPAs and EuPC).

The presence of a non-converting actor will ruin the confidence the converter would have in the project. For example, the choice of "public authority", through basically evaluation or assessment of the energy savings realised, will change the VLTA to a compulsory by law action. The compulsory parameter is something the development of a VLTA wanted to avoid.

The same reflexion could be used if the choice goes to an external consultant to realise data collection for instance. But, in this latter case, the cost parameter definitely explains why this option is not relevant.

The actor of the monitoring systems will be run only by internal characters, meaning only converters, NPAs, EuPC.

Consultants and public authorities won't be part of the monitoring process.

3.3.3 Data collection

The question of the type of the data collection system :

The state of the art regarding monitoring systems, as described in the deliverable D. 4.1, shows two possibilities to collect data :

	Cost	Precision	Repor. / Analy.
Non-computerised data collection	X	XXX *	XX
Internet / computerised data collection	XXX	XXX *	XXX

* : hypothesis of equal competence

Legend :

- X : non-intensive effect or poor quality.
- XX : medium intensive effect or medium quality.
- XXX : high intensive effect or high quality.
- Repor. / Analy. : improvement of the reporting and analysis phases.

The cost parameter plays in major role in the choice between these two data collection systems.

The first system, based on paper surveys basically or e-mailing, is the cheapest to implement and the most common for every kind of associations. But in one other hand, with this system, the cost related to the time to aggregate the data collected and produce a relevant reporting is the very most expensive out of the two options. Moreover, as mentioned in the chosen structure for the reporting, NPAs will be on the front line. The NPAs won't be able to afford big cost time for aggregation, going from papers to data bases. It won't be possible too to send papers results to the last level, EuPC, from all over the Europe for the same reason.

Regarding the cost parameter, in terms of time to spend in data collection, the system to use is an Internet data collection system.

Question of a European Website versus national Internet spaces :

The following logical step was to discuss two different solutions regarding this Internet data collection system :

1) First way : invite the converters to participate through the national Internet Website of their own NPAs.

In this option, every NPAs should develop an Internet space dealing with the energy savings topic. This proposal comes with two advantages :

- This option use Websites already known and used by the converters.
- There is no translation work to do either by NPAs or converters and every national initiative will be directly and quickly promote.

2) Second way : the EuPlastVoltage Website is the unique Internet place.

This proposal comes with two advantages :

- The cost induced by aggregation and reporting, may be analysis too, is considerably reduced for both NPAs and EuPC.
- The communications documents are homogeneous at the European level and every NPAs, even those who can't afford to launch national operations, could use and promote them.

The waste of time is the worst enemy of every young industrial initiative, at all stages, from documents collection to analysis and final reporting. With this idea, the time parameter, and to prevent additional cost in creating or modifying the national Websites, the NPAs member of EuPlastVoltage chose the second way.

The second conclusion regarding the data collection was to officialise the EuPlastVoltage Website as the unique data collection system.

The question of the nature of the data collected :

The list of the data to be collected was defined in the D. 4.1 deliverable, as follows :

	Comments
1. Tonnage processed	Useful for N / E
1bis. Energy consumption	Useful for C / N / E
SEC	- Automatically calculated (no action from the converter) - Useful for C / N / E
2. Energy prices	Useful for N / E
3. Number ... SMEs involved	Useful for C / N / E
4. Share ... SMEs involved	Useful for C / N / E
5. Compliant SMEs	Useful for C / N / E
6. Energy savings measures	Useful for C / N / E

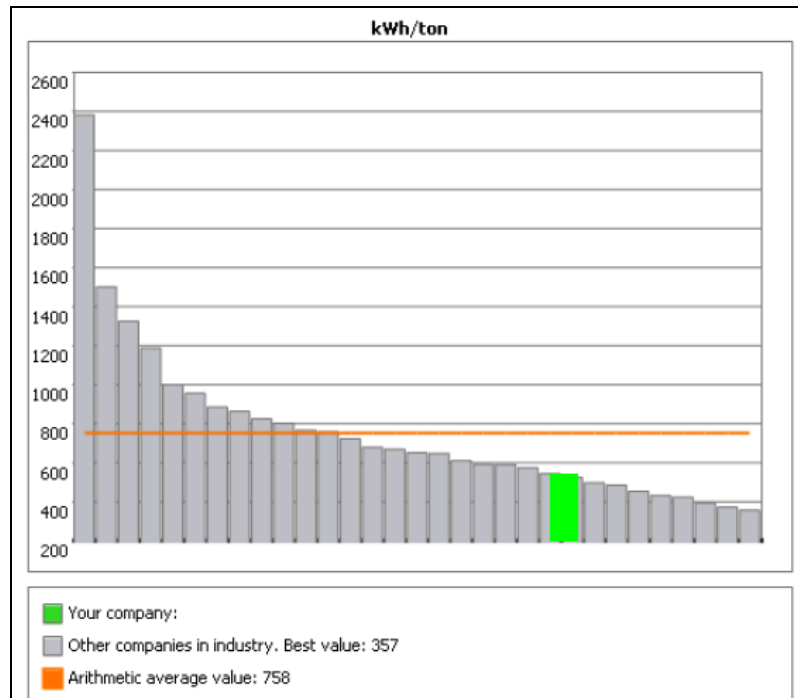
In order to complete the declaration, the converters will have to provide some basics information, as usual : name of the company, plant location and person in charge of the declaration.

Other detailed data doesn't have to be part of the questionnaire : size and financial results. NPAs are supposed to collect these answers by others ways.

The question of the Internet Website as an automatic benchmark tool :

The analysis of the state of the art (see D. 4.1) expresses that the data collection system has to be a motivating one for the user. A converter will be pleased to fill in its declaration on the EuPlastVoltage Website if he receives immediate results. The BESS project was a very interesting example to follow. After the validation of its declaration, the user sees on the screen a benchmark page. At this moment, the user could compare its situation (consumption) to the situation of the others industrials of the same sector.

The next picture is an extract from the BESS handbook :



As a third conclusion, the EuPlastVoltage website will have to be upgraded in order to produce automatic benchmarking, as :

- a result of the end of the data collection phase.
- a compliance/non-compliance answer.

The benchmark will deal with the most interesting indicators for a converters (as defined in D. 4.1) :

- Energy consumption.
- SEC.
- Number / Share of SMEs of the same sector involved with option to select by country.
- Number / Share of compliant SMEs, with option to select by country.
- Number and type of energy savings measures implemented, chosen from the list defined in WP3.

3.3.4 Frequency of the monitoring

The deliverable D. 4.1 presents three different frequency of monitoring :

	Cost	Precision
Quarterly, half-yearly	XXX	XX
Annual basis	X	XX
Annual with intermediate reporting	XXX	XXX

Legend :

- X : non-intensive effect or poor quality.
- XX : medium intensive effect or medium quality.
- XXX : high intensive effect or high quality.

The culture concerning energy savings varies from country to one other. The launch of the VLTA will be a fine equilibrium to find, between regular, motivating communications and the objective of avoid all sources of pressure on the converters. It is already known that a converter won't be active in EuPlastVoltage if he has to spend a lot of time during the programme. NPAs background regarding surveys shows that a high frequency, repetition, will kill the project. In parallel, in reproducing many times a year data collection operations, NPAs will too have a difficulty to find the needed time.

The later point was illustrated by the case-study of half-yearly monitoring system use by every NPAs on a sample of their targets. The objective was to anticipate the results of the annual and final reporting. This option could be useful to prevent bad situations by implementing some emergency communication actions (new explanations, new meetings at a regional or national level, ...).

The impact of regulation is one other relevant parameter in the choice of the frequency. The ESD is more than clear on this matter and the annual period is mentioned.

The EuPlastVoltage monitoring system will be based on an annual frequency (calendar year or not).

3.3.5 Relationship with authorities : external audit

The topic of the external verification by an independent body deals with the relation, the support of the European authorities to the EuPlastVoltage agreement. The deliverable D. 4.1 proposes an evident synthesis of the two options :

	Cost	Communication impact
VLTA with external audit	XXX	XXX
VLTA without external audit	X	XX

Legend :

- X : non-intensive effect or poor quality.
- XX : medium intensive effect or medium quality.
- XXX : high intensive effect or high quality.

The balance between cost and the needed communication impact was not an easy to do. Taking account the ESD and other examples of very huge voluntary agreement, as EuPlastVoltage targets to be, the decision was to confirm the use an independent assessment body.

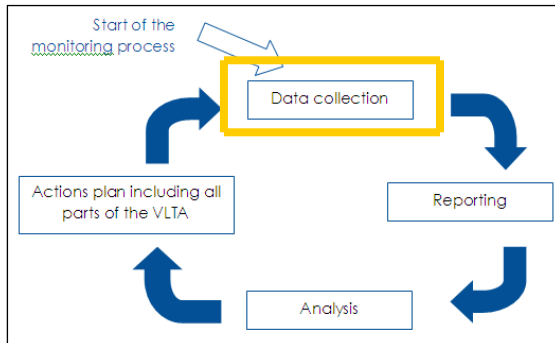
The next issue was to find which level in the monitoring structure will have to implement this validation.

It was clear that the converters shouldn't be the actor who will have to pay an external audit to validate its energy savings results. The question went on to NPAs and EuPC.

During the first years of the EuPlastVoltage, the communication impact is mainly anticipated at the European level. This solution was adopted, but, estimations of external audits costs were still missing when the work package leader wrote this deliverable. As soon as possible, the document will be updated with these data and the option will be confirmed or not.

At this moment of the programme, the EuPlastVoltage monitoring system will be assess by an independent body at the EuPC's level.

3.4 Procedures regarding the data collection phase



This chapter will describe the relevant practices and procedures to ensure an efficient and easy data collection phase in the energy savings monitoring system.

Before the data collection phase :

A good monitoring is based on repetitions and reminders. Before the official opening day of the annual data collection, NPAs should develop a regular communication programme in order to help converters keeping in mind the absolute necessity to join the VLTA. The communication will use the deliverables of the WP7.

Procedures 1 : creating reminders concerning the opening day

- **NPAs should contact all their members and other targets four months before the data collection phase on a monthly basis.**
- **Converters should be contacted by e-mail and through every news letters usually produced by the NPA.**

The opening day of the data collection phase :

The converters should receive an e-mail with the direct link to the Internet page, part of the EuPlastVoltage Website, dedicated to the data collection.

During the first two years of the EuPlastVoltage VLTA, it could be necessary to join in the e-mail, a downloading file. This file will be a chance for the motivated converters but afraid by a Internet declaration, to participate in filling in the form. The NPA would be the recipient of the document and will have to assume the declaration.

Procedures 2 : the opening day of the data collection phase

- **The opening day of the data collection, NPAs send an e-mail to their members and others targeted contacts.**
- **During the first two years of the VLTA, a form similar to the Internet declaration page is enclosed in the e-mail.**
- **The opening of the data collection phase is part of the usual communication of the NPA.**

After the opening day of the data collection phase :

The usual average duration for a relevant data collection phase is three to four months. During the first two years of the agreement, the three months period should be preferred.

During this phase, in order to engage correctives communication actions, EuPC should inform on a monthly basis NPAs about the number of declaration.

Procedures 3 : keeping NPAs informed about the national level of involvement

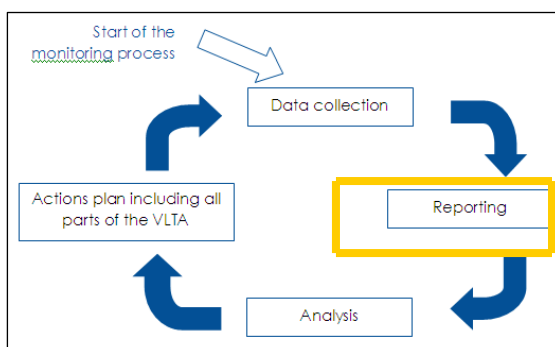
- **During the three months data collection period, EUPC sends to NPAs every month an update about the number of SMEs participating.**

The first two years, some SMEs will prefer to use the declaration form send by e-mail instead of use the EuPlastVoltage Website to declare their data.

Procedures 4 : dealing with the paper forms

- **During the first two years of the EuPlastVoltage VLTA, NPAs deals with paper forms.**

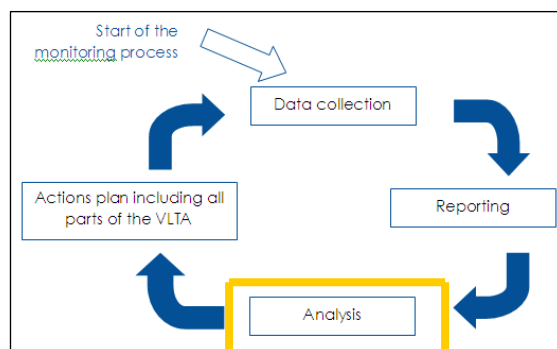
3.5 Procedures regarding the reporting phase



This chapter is dedicated to the easiest phase of the monitoring energy savings system within the EuPlastVoltage VLTA.

The conclusions mentioned in the previous chapter of this deliverable officialised the use of an automatic computerised application generating benchmark. If the computerised solution is fully operational, the time needed to realise the reporting will be equal to zero.

3.6 Procedures regarding the analysis phase



The analysis phase is entirely placed under the EuPC's responsibility, the unique recipient of all the collected data.

As mentioned in the deliverable D. 4.1, this phase is a critical one. The average duration of this period goes to one to two months in the on context of an industrial voluntary agreement.

During this period, EuPC will have to produce a pre-report, send to NPAs for comments.

The report should present data and explanations about the compliance or non-compliance to the baseline on the European and national levels. This double selection is necessary to help :

- EuPC communicating to the European politics and Associations.
- NPAs to fulfil their national commitments or energy action programmes.

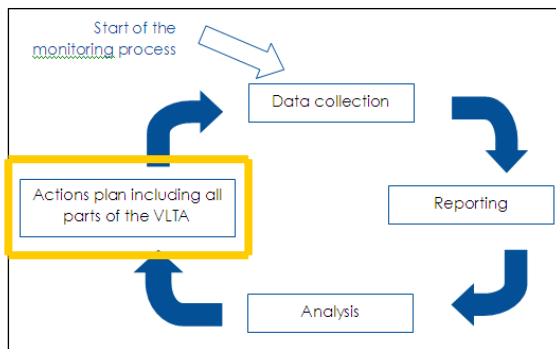
The duration for this phase should extend to 1 month.

Procedures 5 : analysis phase and pre-report

- **At the end of the one month analysis period, EuPC sends to NPAs for comments a pre-report.**
- **The pre-report will deal with the followings indicators :**
 - Tonnage processed.
 - Energy consumption.
 - SEC.
 - Energy prices.
 - Number / Share of SMEs involved with option to select by country and by sector.

- Number / Share of compliant SMEs, with option to select by country and by sector.
- Number and type of energy savings measures implemented.
- Neither EuPC nor NPAs are allowed to use the pre-report in a communication action.

3.7 Procedures regarding the action plan



This last phase of the monitoring, run by EuPC, gets one clear objective : to define the communication plan with the approval of NPAs.

The validation of the compliance or non-compliance to the baseline and, moreover, the communication addressing the good performance or the explanations for deviation requires :

- The participation of all NPAs involved in the agreement.
- E-mails exchanges but at least, one physical meeting for the EuPlastVoltage consortium.

This work process should extend to one month.

The main objective of EuPC is to have a fully communicable report at the most interesting date for communication, depending on the audience type.

This date was defined as the general assembly.

During this meeting, every aspect like average data, analysis and communication plan are part of the agenda.

After the general assembly, every NPA should be allowed to use the document for its own purposes.

Procedures 6 : final report and action plan

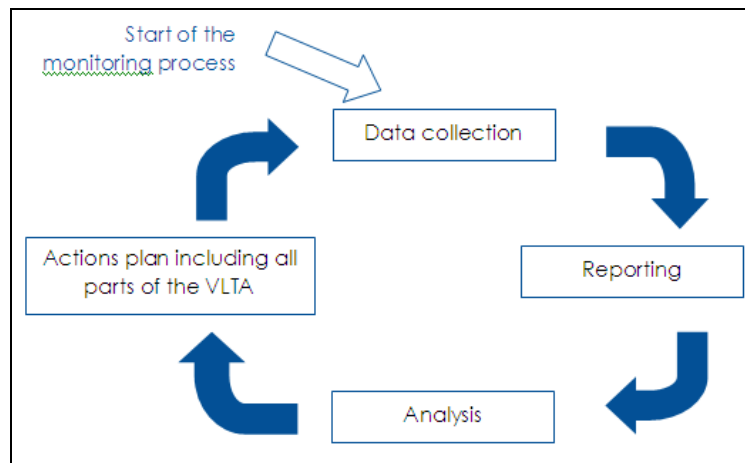
- A physical meeting is organised by EuPC under a one month period.
- NPAs involved in the agreement, discuss and validate the final report with EuPC in the so called EuPlastVoltage consortium.
- The final report is officially addressed during the general assembly.

4 Summarisation of the recommended monitoring procedures

This chapter gathers all the main conclusions of this work package deliverable.

A four steps monitoring process :

The EuPlastVoltage energy savings monitoring will run as a four steps monitoring :



First conclusions and requirements :

- The EuPlastVoltage monitoring is a monitoring type I.
- The actors of the monitoring system are only converters, NPAs and EuPC.
- The EuPlastVoltage Website is the data collection system.
- The EuPlastVoltage Website will be upgraded in order to produce automatic benchmarking dealing with the following indicators :
 - The energy consumption.
 - The SEC.
 - The Number / Share of SMEs of the same sector involved with option to select by country.
 - Number / Share of compliant SMEs, with option to select by country.
 - Number and type of energy savings measures implemented, chosen from the list defined in WP3.
- The EuPlastVoltage monitoring system will be an annual monitoring.
- The EuPlastVoltage monitoring system will be assessed by an independent body at the EuPC's level.

Recommended procedures :

Procedures 1 : creating reminders concerning the opening day

- **NPAs should contact all their members and other targets four months before the data collection phase on a monthly basis.**
- **Converters should be contacted by e-mail and through every news letters usually produced by the NPA.**

Procedures 2 : the opening day of the data collection phase

- **The opening day of the data collection, NPAs send an e-mail to their members and others targeted contacts.**
- **During the first two years of the VLTA, a form similar to the Internet declaration page is enclosed in the e-mail.**
- **The opening of the data collection phase is part of the usual communication of the NPA.**

Procedures 3 : keeping NPAs informed about the national level of involvement

- **During the three months data collection period, EUPC sends to NPAs every month an update about the number of SMEs participating.**

Procedures 4 : dealing with the paper forms

- **During the first two years of the EuPlastVoltage VLTA, NPAs deals with paper forms.**

Procedures 5 : analysis phase and pre-report

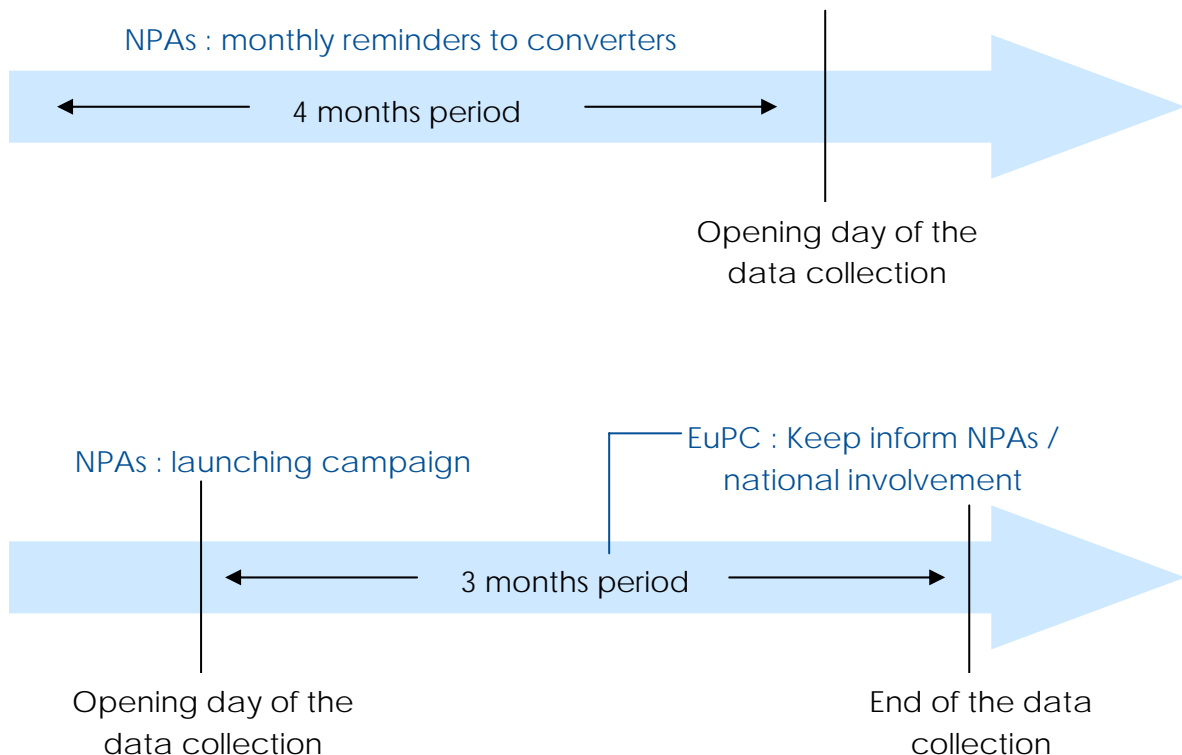
- **At the end of the one month analysis period, EUPC sends to NPAs for comments a pre-report.**
- **The pre-report will deal with the followings indicators :**
 - **Tonnage processed.**
 - **Energy consumption.**
 - **SEC.**
 - **Energy prices.**

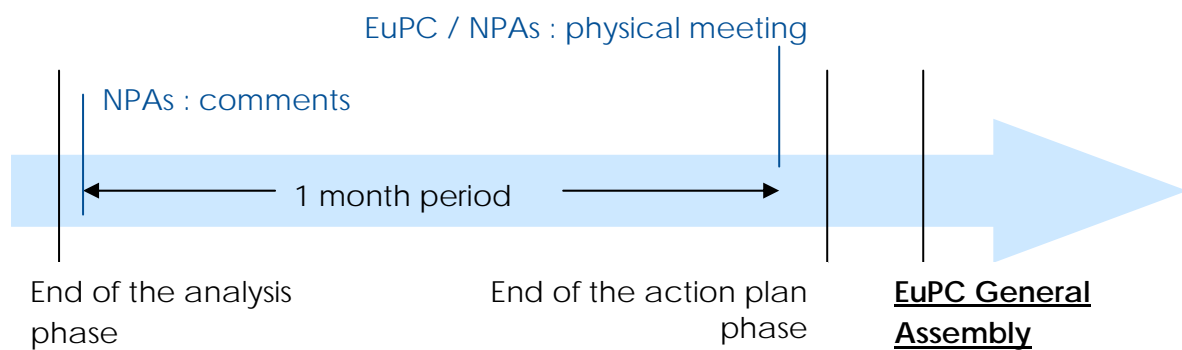
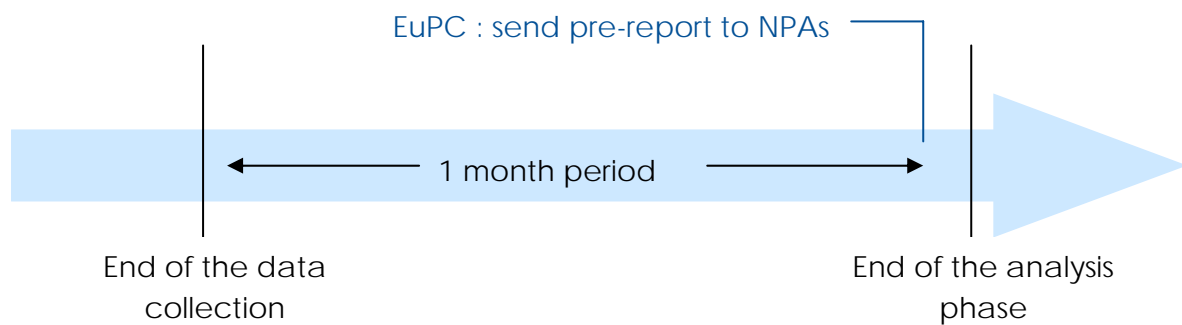
- - Number / Share of SMEs involved with option to select by country and by sector.
- - Number / Share of compliant SMEs, with option to select by country and by sector.
- - Number and type of energy savings measures implemented.
- Neither EuPC nor NPAs are allowed to use the pre-report in a communication action.

Procedures 6 : final report and action plan

- A physical meeting is organised by EuPC under a one month period.
- NPAs involved in the agreement, discuss and validate the final report with EuPC in the so called EuPlastVoltage consortium.
- The final report is officially addressed during the general assembly.

Time schedule of the EuPlastVoltage monitoring system :





5 Next steps during the work package

The conclusions of the present document will be analysed with the deliverables of the next WP within the EuPlastVoltage project.

The D. 4.3 deliverable will gather all the best practices and procedures needed by EuPC and NPAs to ensure the best involvement indicator.

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