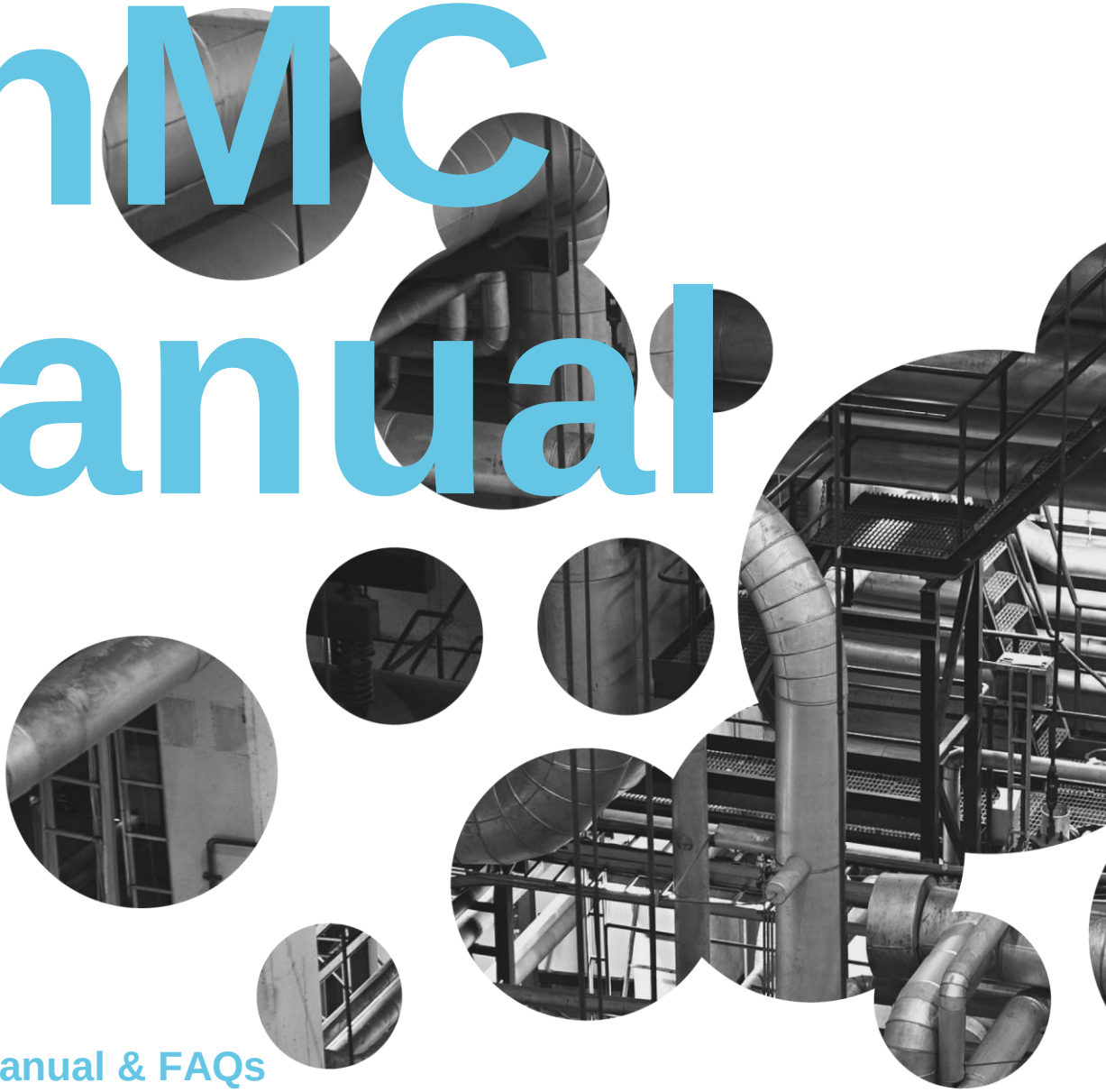
STEAM UP

EnMC Manual



D5.8 EnMC Manual & FAQs

Deliverable: D5.8 List of frequently asked questions (FAQs), with a summary of most important non-energy benefits as experienced by the user.

Author: adelphi research gemeinnützige GmbH

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Deliverable Report

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Funding Scheme: Horizon 2020

Date of latest version of Annex I against which the assessment will be made:

Deliverable Number: Deliverable 5.8
Deliverable Title: List of frequently asked questions (FAQs), with a summary of most important non-energy benefits as experienced by the user.

Name, title and organisation of the project's coordinator:

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Description of the Deliverable:
This deliverable contains a manual for using the Energy Management Centre. Initially in D5.8 it was planned to develop a list of FAQs, with a summary of most important non-energy benefits as experienced by the user.
During the project time it was agreed within the project consortium that it is more practicable and helpful for the project when we produce a manual for working with the EnMC instead.
A list of FAQs that has been collected over the project time is added to the manual.

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Co-funded by the Horizon2020

1. Introduction

1.1. Challenges of energy management

Energy Managers face many challenges when organizing implementation of efficiency measures after an energy audit took place:

- Auditors report their findings as PDF/paper on many pages. Before being able to plan responsibilities, formulate instructions and set deadlines for implementing measures, energy managers have to extract the needed information manually. Wouldn´t it safe time if findings could be applied directly?
- Audit reports are written from a technical point of view. To get budget for implementation, energy managers often have to convince top-management to agree to investments. Wouldn´t it help to generate suitable summaries automatically?
- It is hard to keep track of the implementation process, make adjustments and verify saving effects. Wouldn´t it be easier with a reminder, a dynamic time plan and a monitoring solution?

1.2. Reducing the effort for energy managers

The Energy Management Centre (EnMC) is a web-app (Open Source, free of charge) that seeks to reduce the described effort for Energy Managers. Auditors use the EnMC as a digital reporting solution. Energy Managers directly apply it for organizing the realisation process. The EnMC offers i. a.:

- Interactive Gantt chart for time planning, allocation of responsibilities, description of tasks
- Dashboard with action plans (prepared by the auditor) and a reminder for deadlines
- Generation of business case descriptions and management reports
- Monitoring solution
- Social Network for energy managers and energy auditors

1.3. Rollout within Steam-Up and availability for others

The EnMC was developed for the project Steam-Up (Funding: Horizon 2020). It is compatible to EN 16247 and was applied for more than 75 audits across Europe.

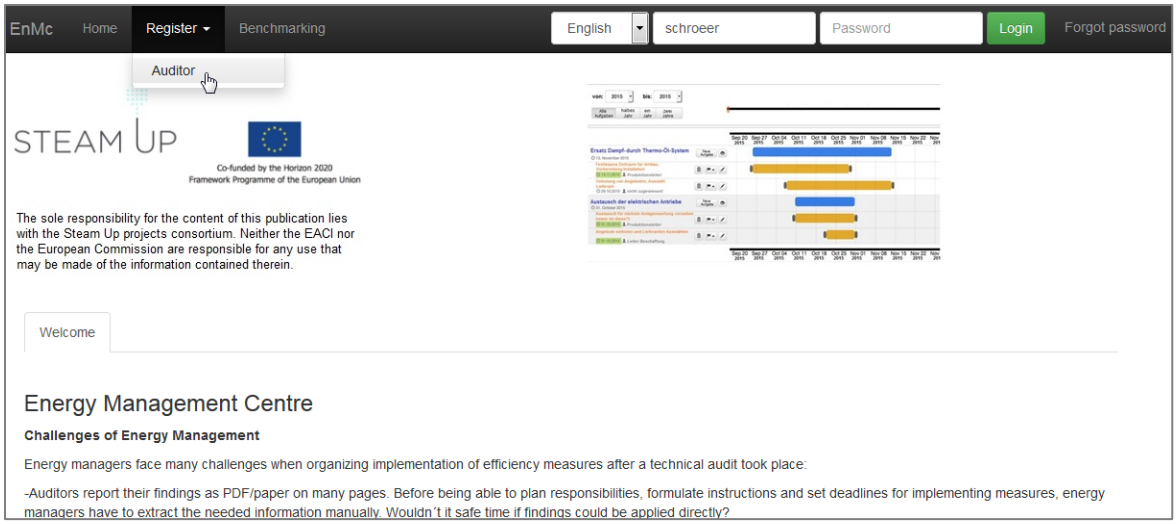
Apart from that all energy auditors and energy managers worldwide can use it for free.

www.energy-management-centre.eu

2. Create an account

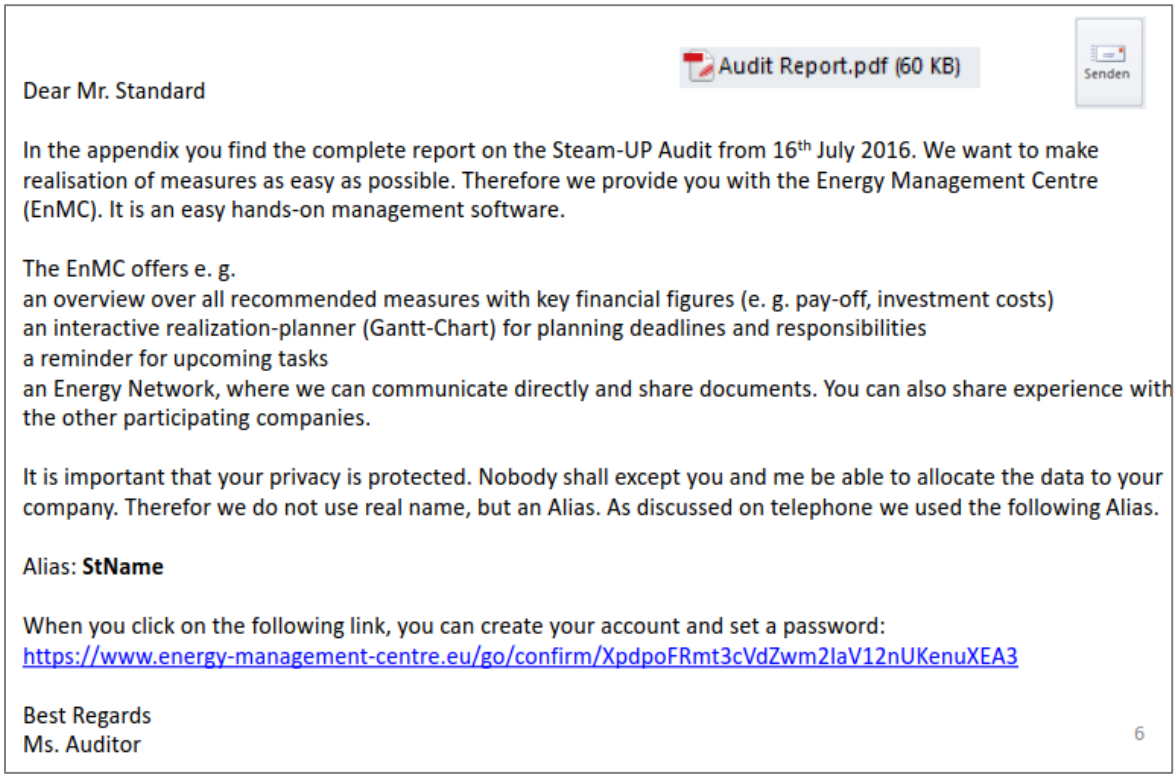
2.1. Auditors

Auditors register under www.energy-management-centre.eu.

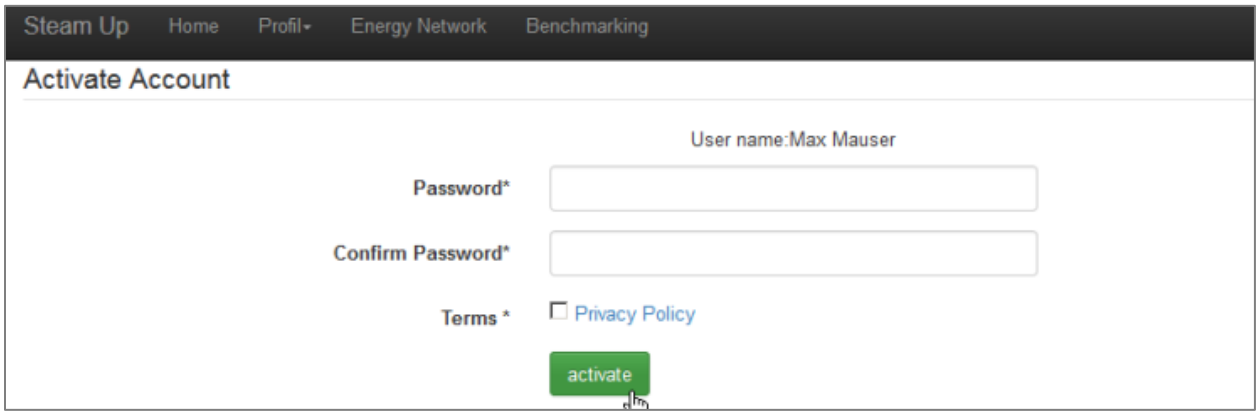


2.2. Energy managers / Clients

Energy managers from the audited businesses who are responsible for the audit receive an invitation from the auditor via email. Within the EnMC these responsible persons are called “Clients”.

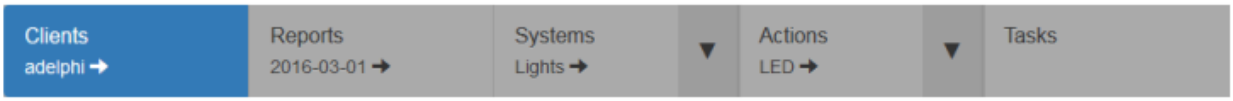


After following the link, clients can set a password and log in.



3. Auditor inputs and management

3.1. Structure of the EnMC menu and definition of terms

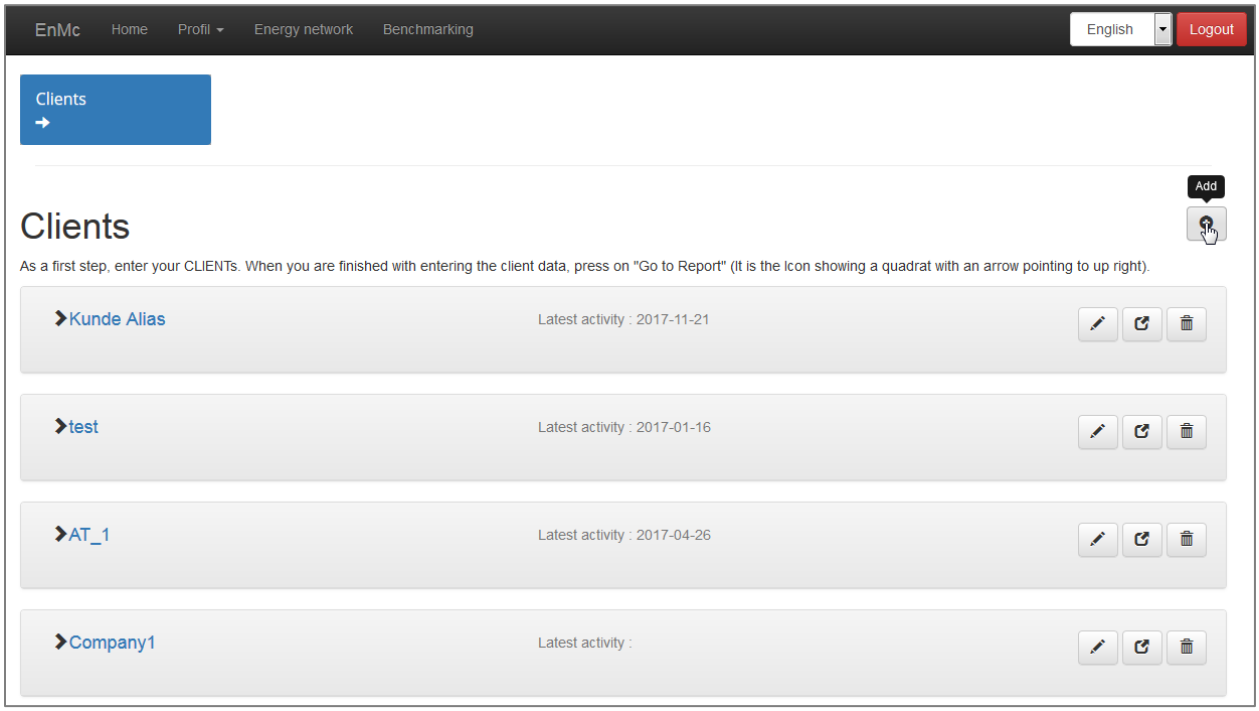


- **Clients**: A list of all clients can be found here. This is the start page of every auditor after they log in. After you selected a client you will be forwarded to the audit reports belonging to this client.
- **Reports**: A list of all audit reports that have been carried out from the auditor can be found here. Reports are ordered according to their date. After selecting a report you would like to manage you will be forwarded to the specific systems of a report.
- **Systems**: A “system” within the EnMC is the definition of the boundaries for the system that was audited. For action plan preparation, next step is to define the boundaries for each system that shall be optimised. A system could be e. g. a steam system, a food drying process or even a whole company. Please define only complete systems without predecessors or successors as the EnMC cannot connect the different systems to each other. In case you have a steam generator, steam distribution and steam using appliances, define a system that surrounds all. A system has inputs (e. g. energy sources) and outputs (e. g. tons of dried fruit, kWh net energy, tons of "product mix"...). After having defined a system you can determine the specific actions for each system.
- **Actions**: Here you can add the actions you recommend to improve the selected system. Your client can see all proposed actions and their expected results. Mark actions that shall be realised by selecting "Implement", otherwise they won´t be included into calculation. After describing the actions you can define specific tasks for each action.
- **Tasks**: Different tasks need to be carried out to realize an action. For every proposed action the auditor can help by shortly describing what has to be done. A task could be e. g. to select a product supplier, define a timeslot for installation etc. The companies/clients can then delegate

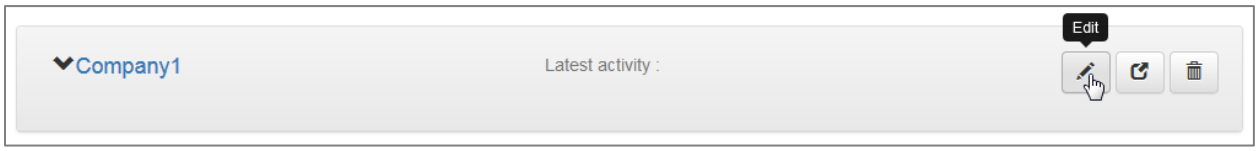
these tasks to company staff members and define deadlines. Clients can also add further tasks by themselves.

3.2. Manage clients

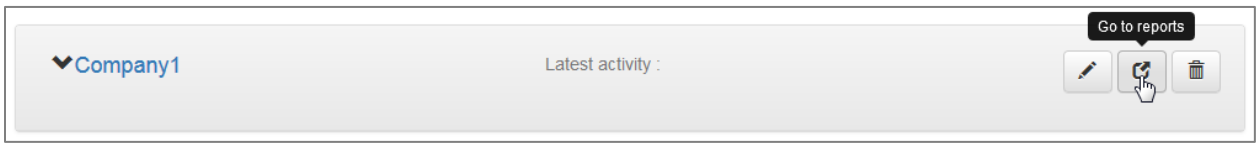
After logging in as auditor all clients are listed. You can select the one to manage. By clicking on the plus sign on the right you can enter new clients. Auditors can enter as many clients as they want.



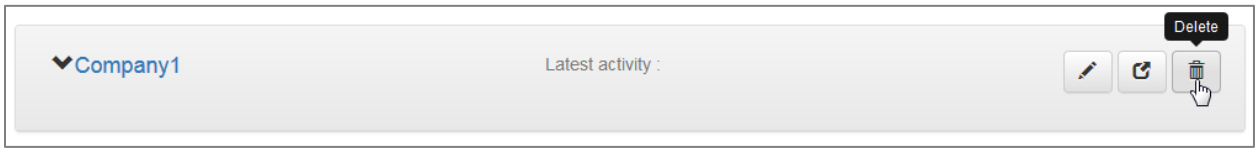
You can edit the entries you made for clients by selecting the “pen”.



You can proceed to the reports of a client by selecting the “box with arrow”.



You can delete a client out of the EnMC by selecting the “trash bin”.



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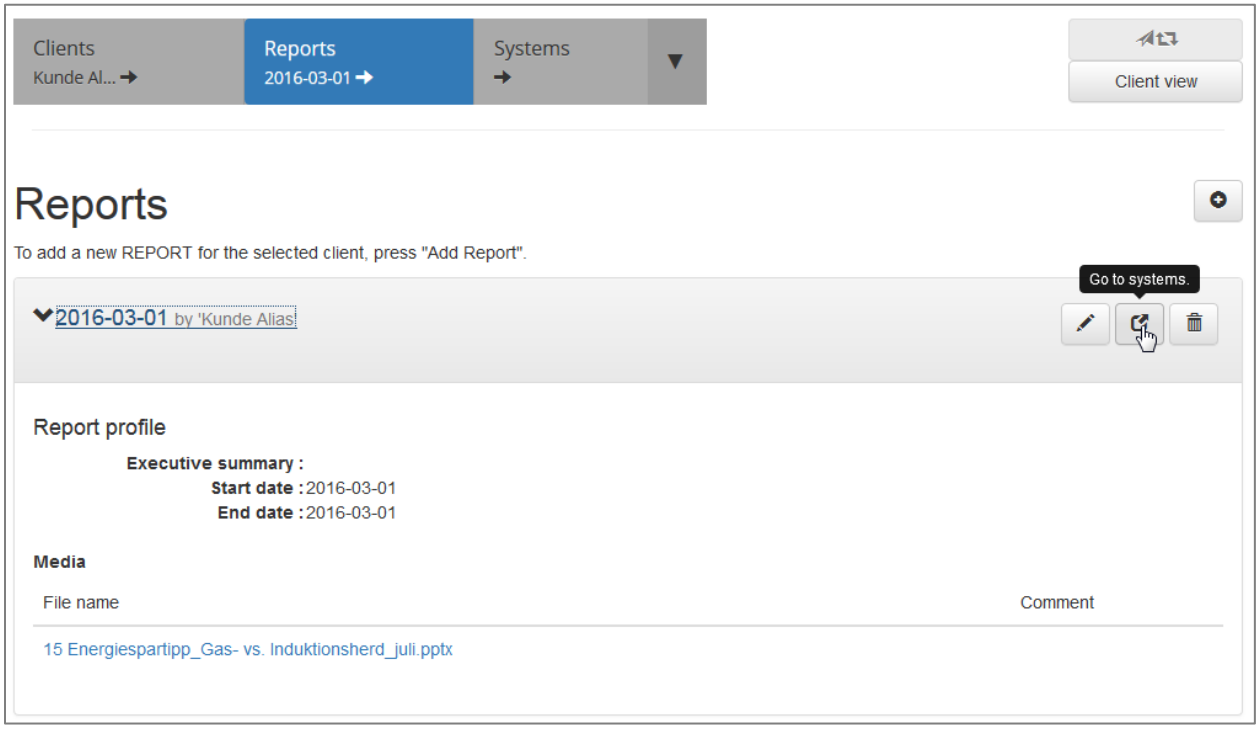
This menu navigation is used throughout the EnMC. You will find this kind of management tools as well for the management of REPORTS, SYSTEMS, ACTIONS and TASKS.

3.3. Manage reports

In this part of the EnMC auditors can describe the audit prepared for a company by adding a report (select “plus” sign). Auditors can also upload the report they prepared for this audit here. More reports can be added if there are further full audits or specific audits for systems.

After entering a report auditors can proceed and define the “systems” of an audit by selecting “go to systems”.



3.4. Manage systems

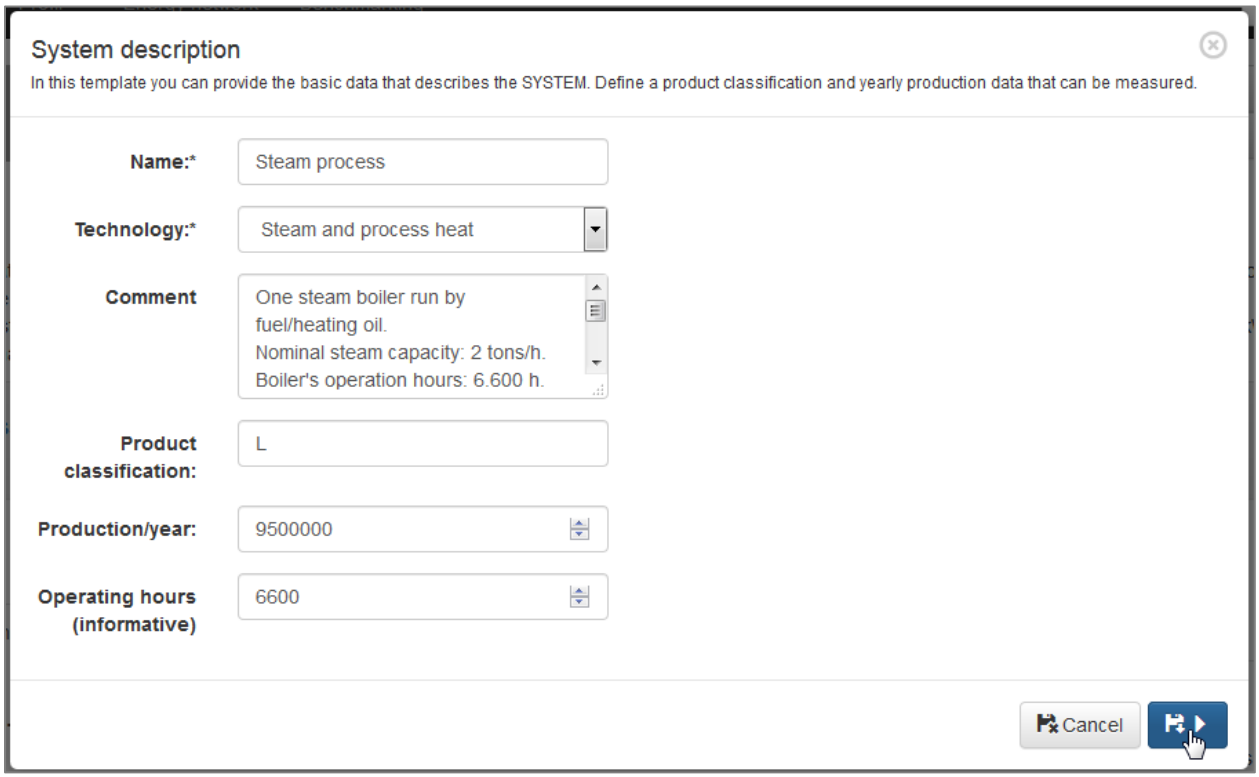
In this part of the EnMC you can manage the systems of an audit. A “system” within the EnMC is the definition of the boundaries for the system that was audited. For action plan preparation, next step is to define the boundaries for each system that shall be optimised. A system could be e. g. a steam system, a food drying process or even a whole company. Please define only complete systems without predecessors or successors as the EnMC cannot connect the different systems to each other. In case you have a steam generator, steam distribution and steam using appliances, define a system that surrounds all. A system has inputs (e. g. energy sources) and outputs (e. g. tons of dried fruit, kWh net energy, tons of "product mix"...). After having defined a system you can determine the specific actions for each system.

After selecting the plus sign auditors can enter the system for their audit.

A window “System description” opens where auditors can enter the following information:

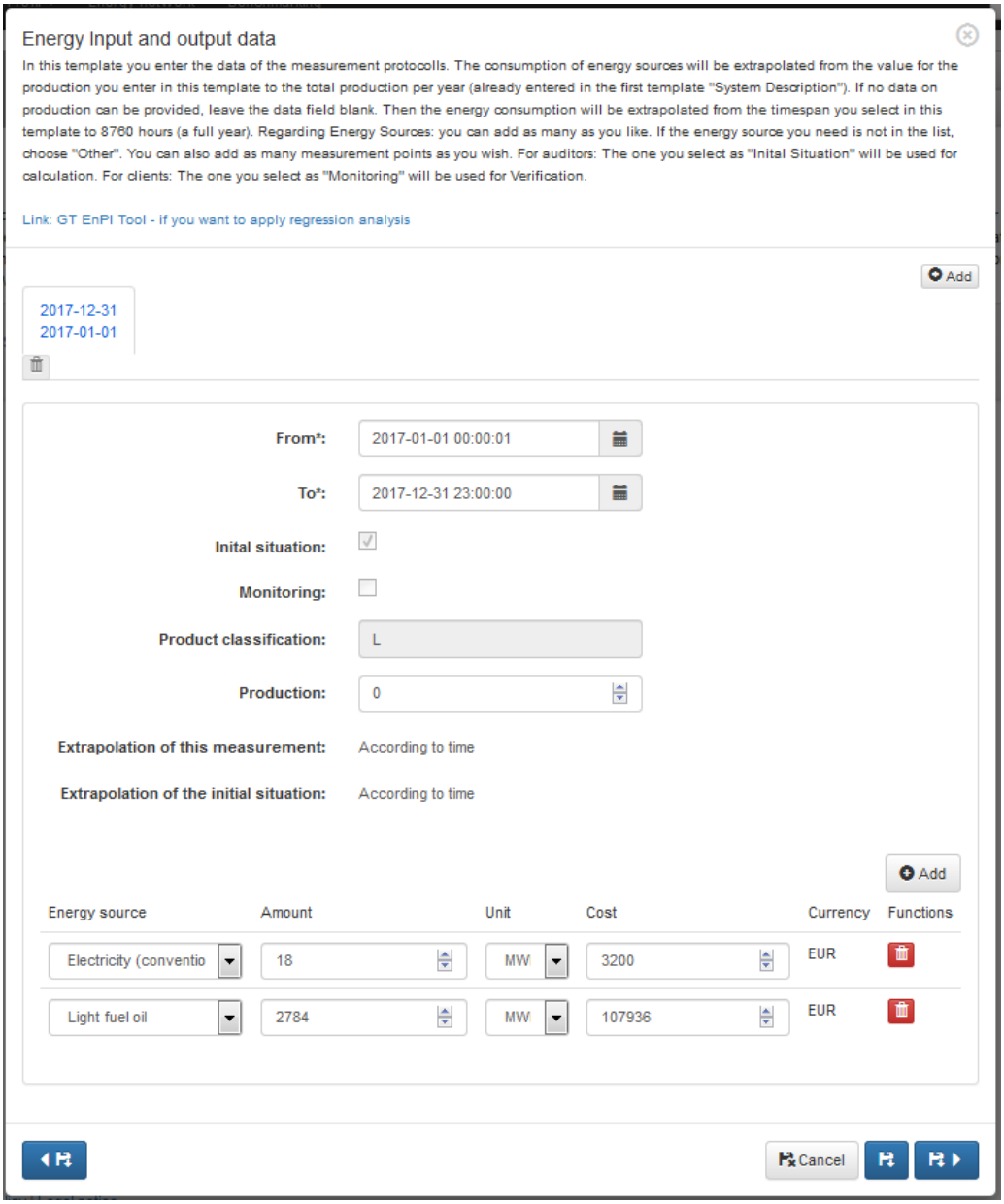
- name of the system,
- technology used within this system,
- comments about the system,
- product classification of the system’s output if possible,
- production per year if possible,
- operating hours if possible.

After you entered the information, click on the save button (blue box with floppy disc).

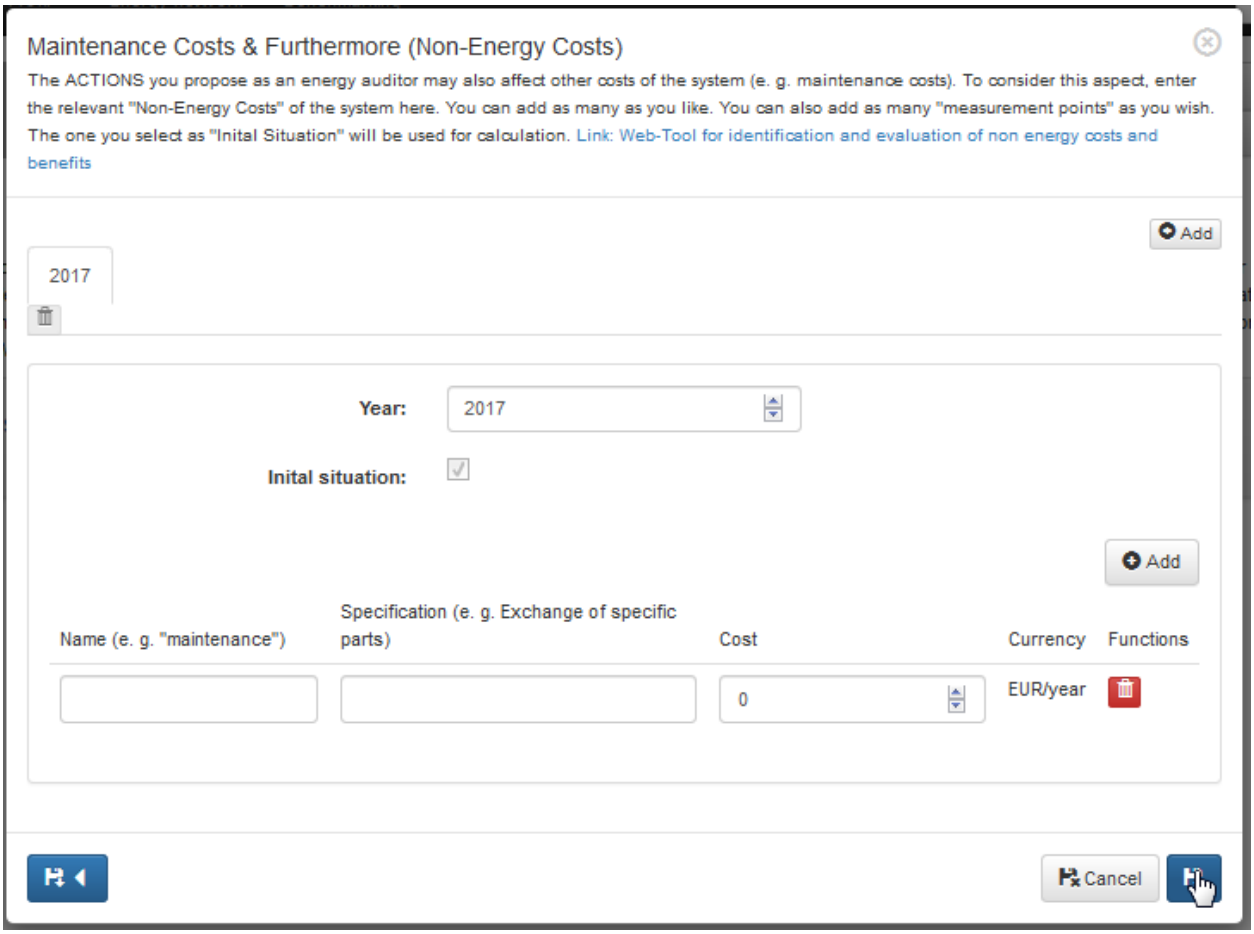


You will be forwarded to the next input window “Energy input and output data”. In this template you enter the data of the measurement protocols. The consumption of energy sources will be extrapolated from the value for the production you enter in this template to the total production per year (already

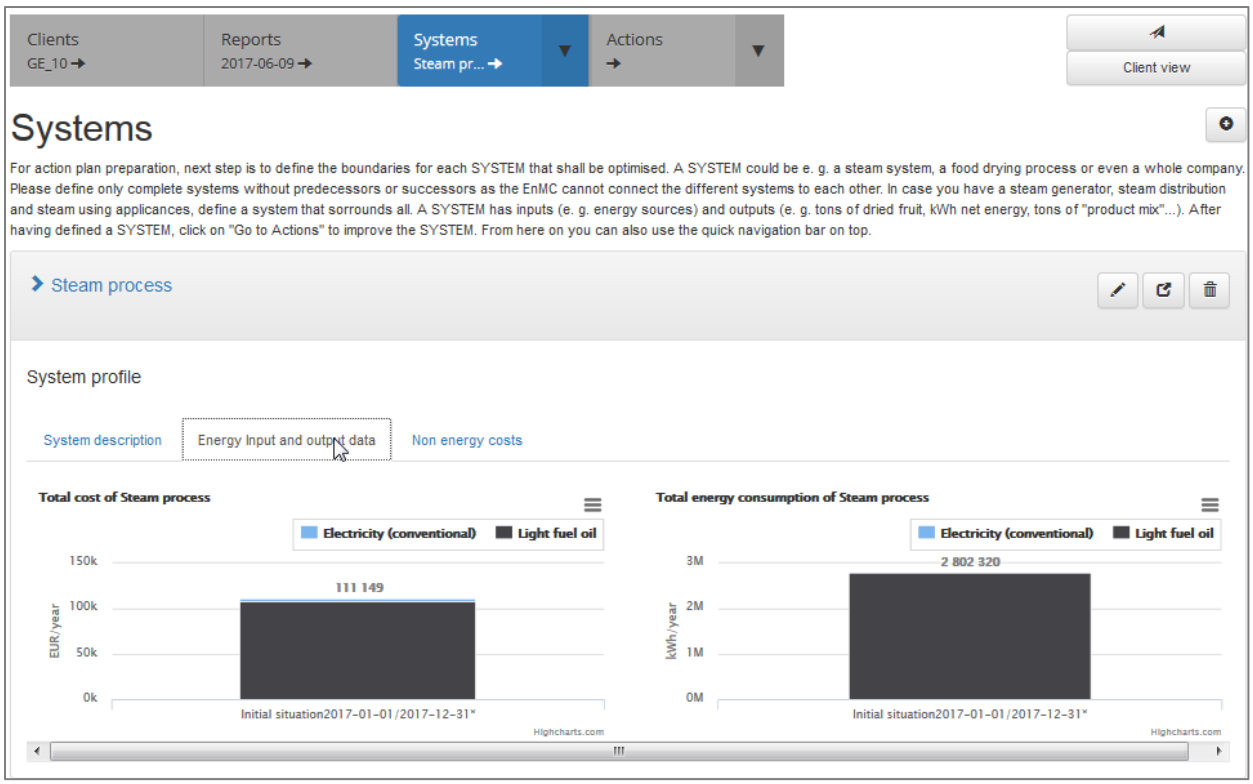
entered in the first template "System Description"). If no data on production can be provided, leave the data field blank. Then the energy consumption will be extrapolated from the timespan you select in this template to 8760 hours (a full year). Regarding Energy Sources: you can add as many as you like. If you cannot find the energy source you need on the list choose "Other". You can also add as many measurement protocols from other points in time as you wish. For auditors: The one you select as "Initial Situation" will be used for calculation. For clients: The one you select as "Monitoring" will be used for Verification. Click the right save button again and you will reach the last step for system definition.



The last step to define a system of an audit is to enter other costs regarding the system that are relevant for the calculation. Non-energy-costs for example like maintenance costs can have positive or negative effects on the proposed energy efficiency action. When you enter information here, this will be taken into account for the calculation of predicted change of costs of an action.



After you saved the last system entries, you can view a graphical evaluation of the system parameters you entered:

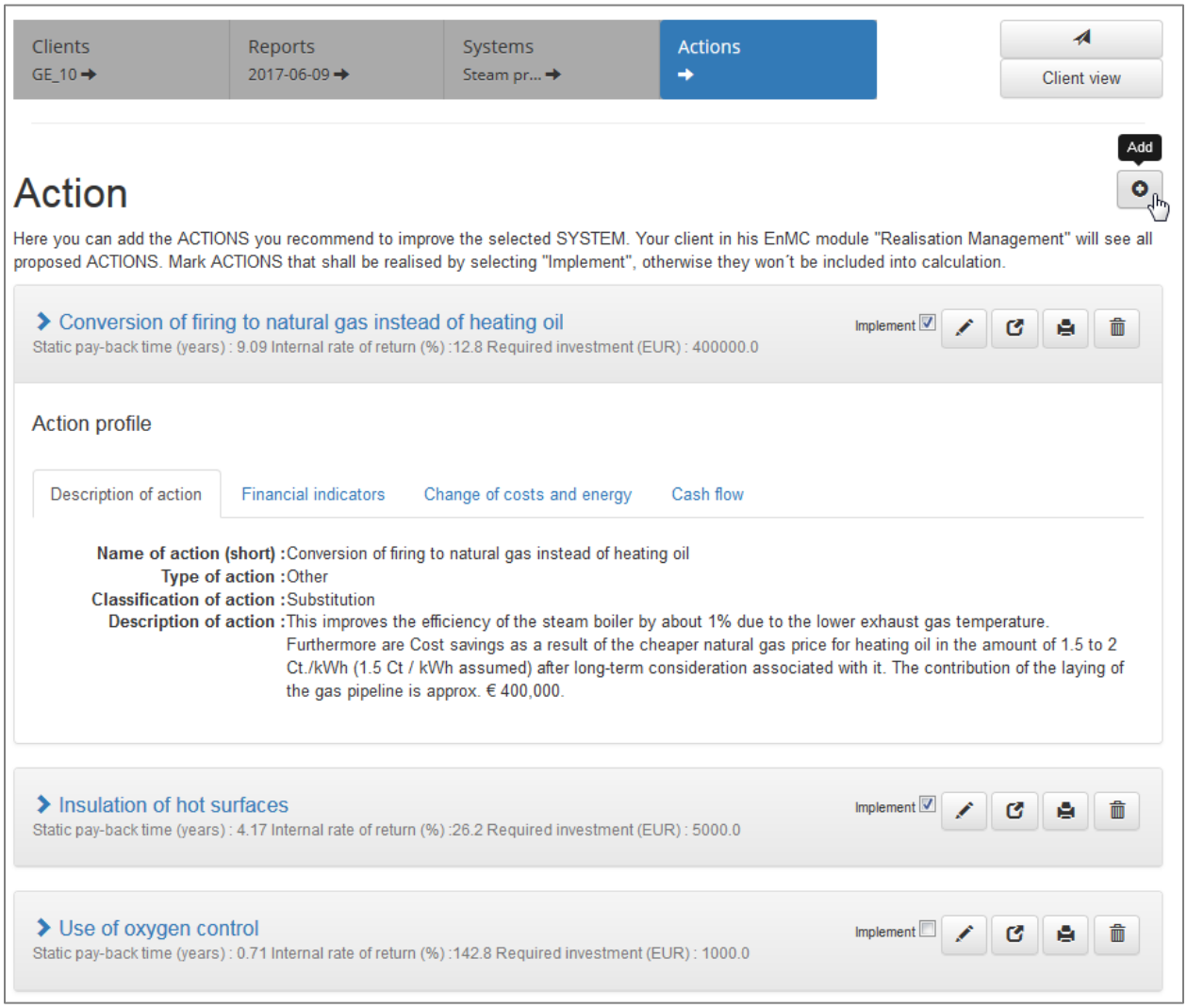


Also the existing non-energy costs will be displayed graphically when you click on the right tab.

In the next part of the EnMC you can define energy efficiency actions by selecting the “box with arrow” which will display “Go to actions”.

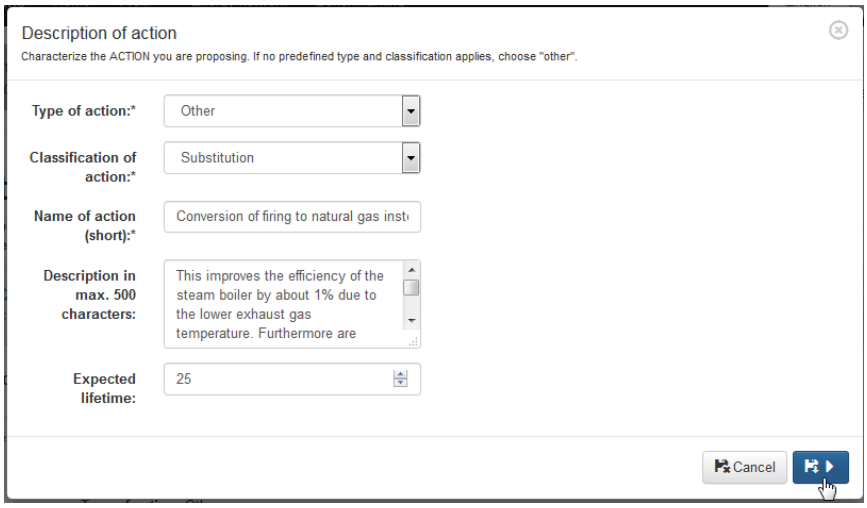
3.5. Manage actions

In this part of the EnMC you can manage, add and define proposed measures – or as they are called in the EnMC "actions". Here you can add the actions you recommend to improve the selected system. Your client in his EnMC module "Dashboard" will see all proposed actions. Mark actions that shall be realized by selecting "Implement", otherwise they won´t be included into calculation.

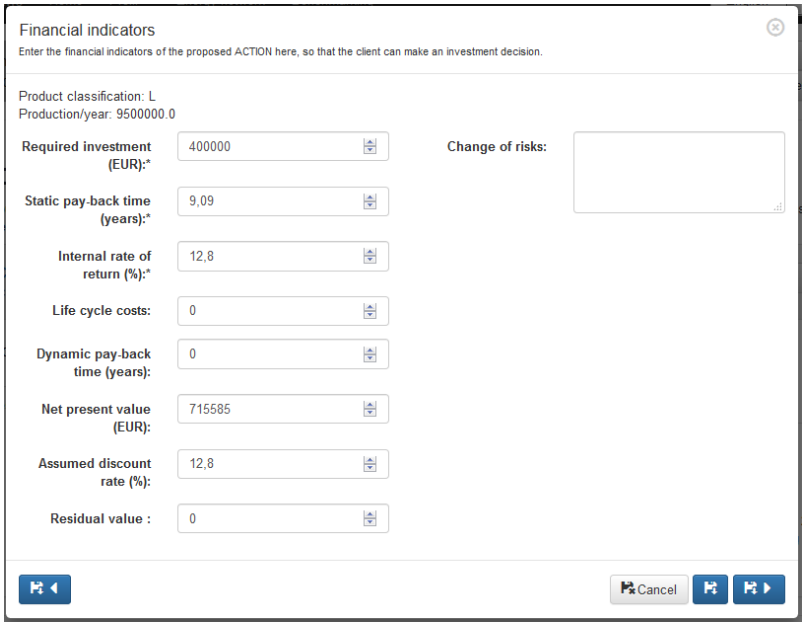


If you want to add an action you need to enter the following information about the action:

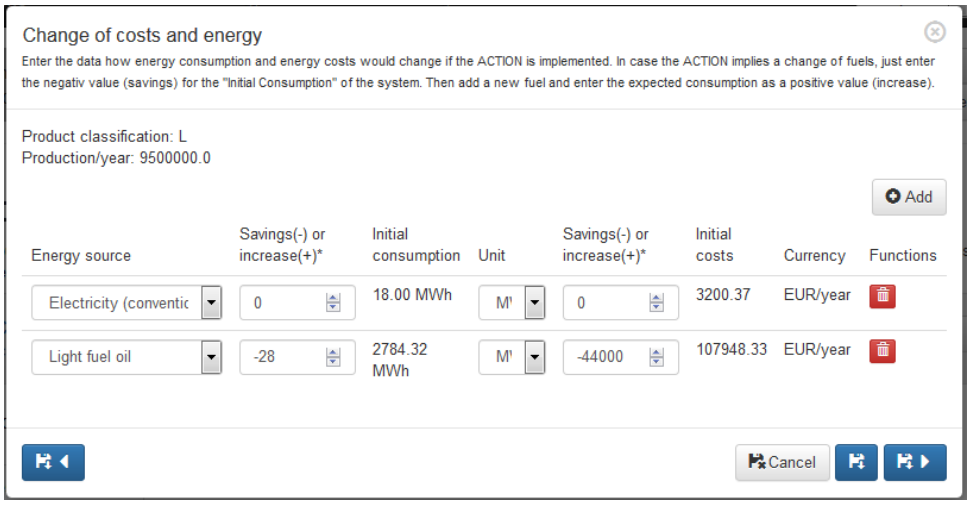
- **Description of action** – Characterize the action you are proposing. If no predefined type or classification applies, choose "other".
    - Type of action
    - Classification
    - Name of action
    - Description in max. 500 characters
    - Expected lifetime

- 

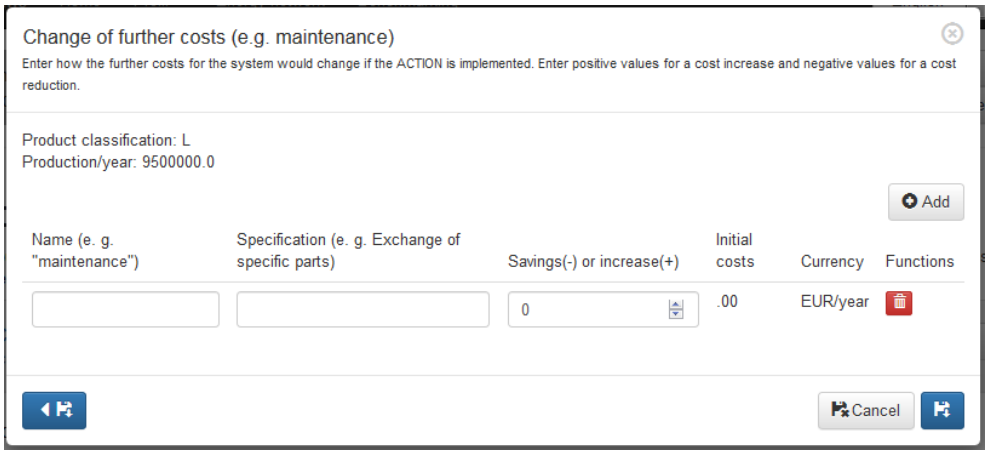
- **Financial indicators** – Enter the financial indicators of the proposed actions here, so that the client can make an investment decision. You do not have to enter all information only if available. Information marked with an "*" are mandatory for the calculation.
    - Required investment*
    - Static pay-back time (years)*
    - Internal rate of return (%)*
    - Life cycle costs
    - Dynamic pay-back time (years)
    - Net present value
    - Assumed discount rate (%)
    - Residual value
    - Change of risks (you can comment here if the proposed action has also influence on any risks (safety, hazards etc.)



- **Change of costs and energy** – Enter the data how energy consumption and energy costs would change if the action is implemented. In case the action implies a change of fuels, just enter the negative value (savings) for the "Initial Consumption" of the system. Then add a new fuel and enter the expected consumption as a positive value (increase).



- **Change of further costs (e.g. maintenance)** – Enter how the further costs for the system would change if the action is implemented. Enter positive values for a cost increase and negative values for a cost reduction.

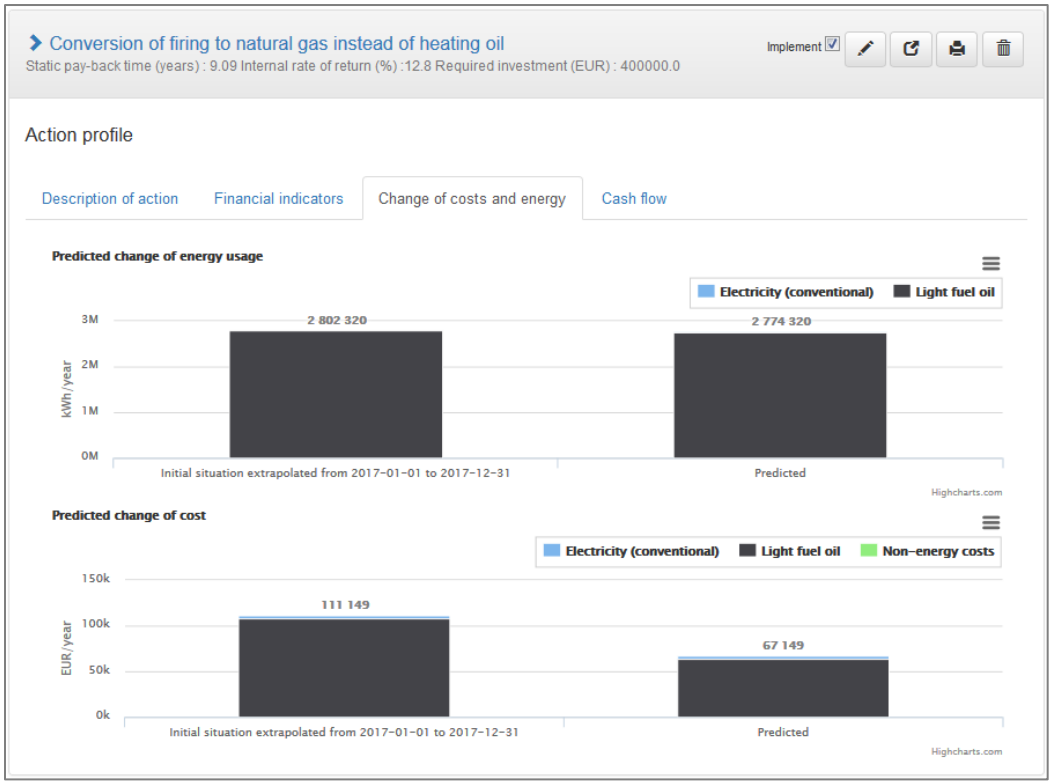
- 

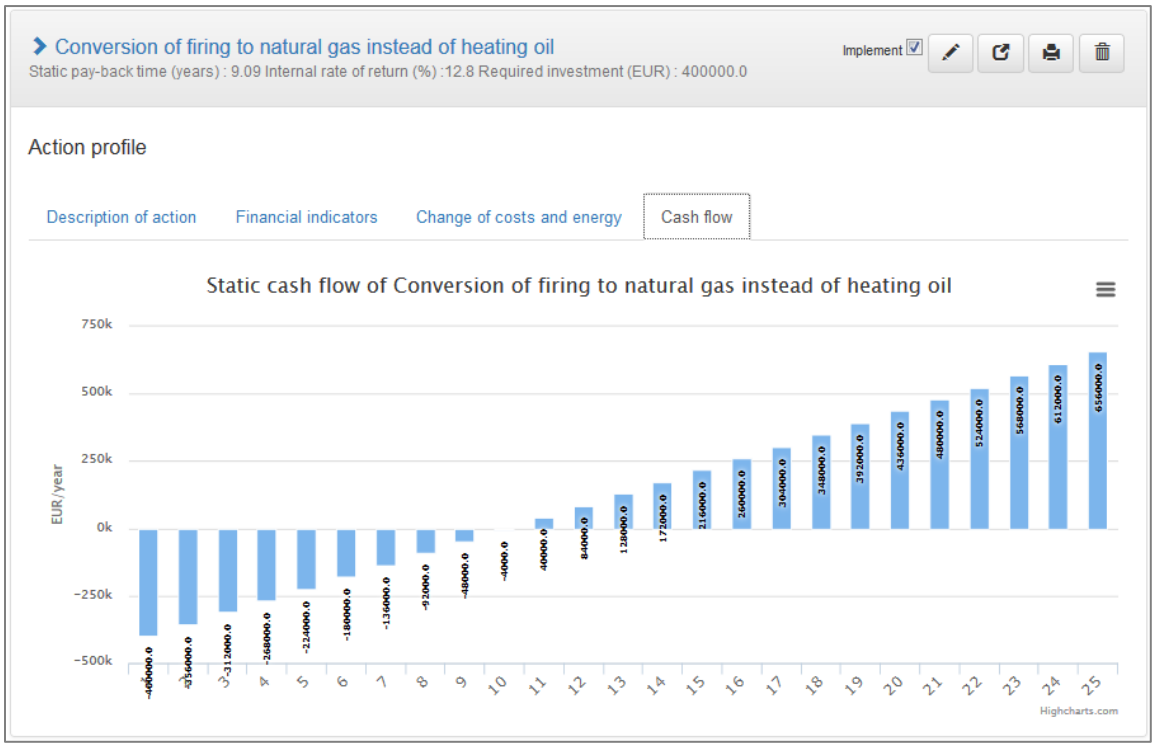
NEBs – NON-ENERGY BENEFITS

Energy efficiency actions often create different side effects in addition to the expected energy savings. These side effects can have significant value and even far exceed the value of the saved energy. The side effects are called non-energy benefits (NEBs), and the term refers to all side effects that may arise after implementing an energy efficiency action.

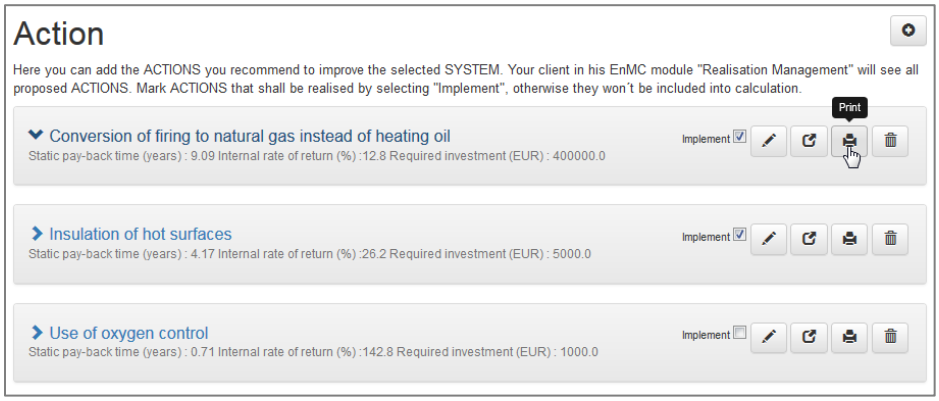
Examples of NEBs are **reduction of waste, maintenance costs, emissions and production downtime as well as improvement of indoor climate, safety, product quality and many more.** The NEBs are easily underestimated in the process of an energy saving projects and during the evaluation of the project.

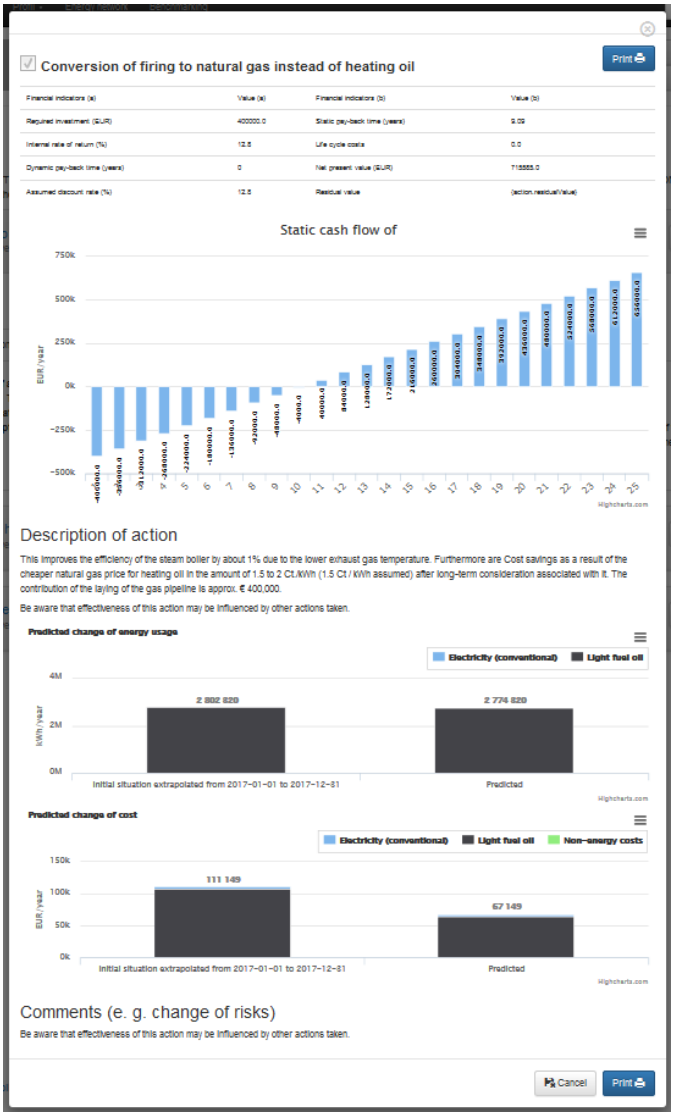
After entering all necessary information for an action the EnMC gives you a graphical processing of change of costs, energy usage and the cash flow.





For managing actions you will have one more feature in the managing menu on top of each action: you can click on the “printer” and produce a PDF file which contains all information and predicted changes for an action.





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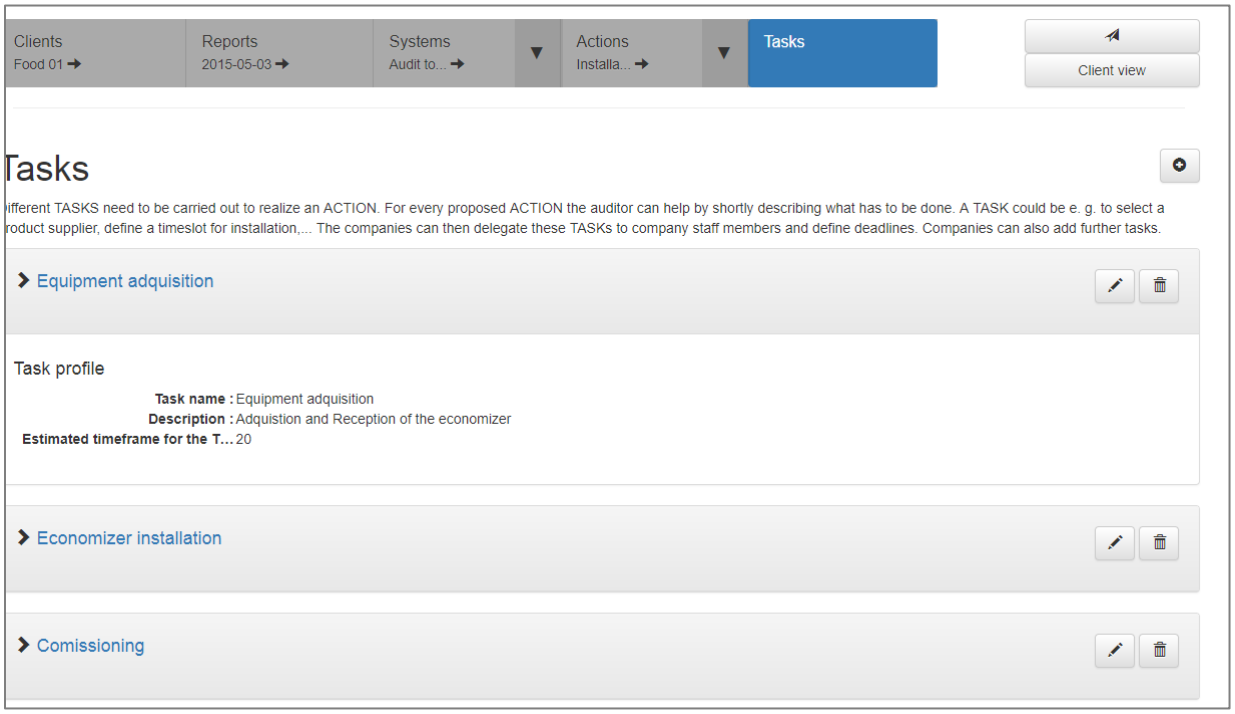
3.6. Definition of Tasks for the action

In this part of the EnMC the tasks for implementing the action were defined: acquisition, installation and commissioning. Each task is defined with the time needed for its implementation. Your client can customize the "estimated timeframe" of the various tasks by himself and can assign tasks to other colleagues.

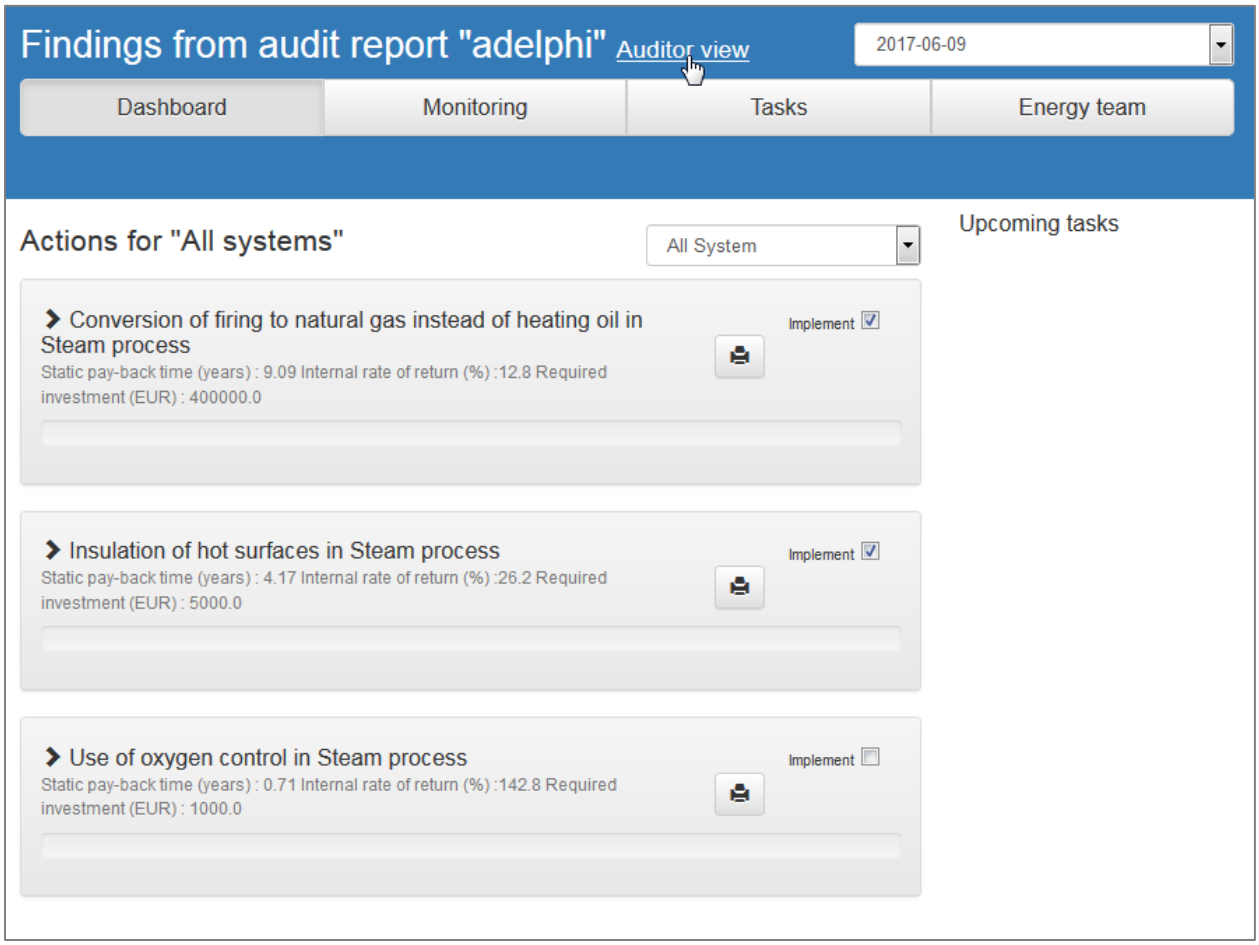


3.7. Take a look at the "Client view"

You as a energy auditor have the possibility to see the reported audit within the EnMC out of the view of your client by clicking on "Client view". Clients get a different presentation which contains only the information necessary for a client.

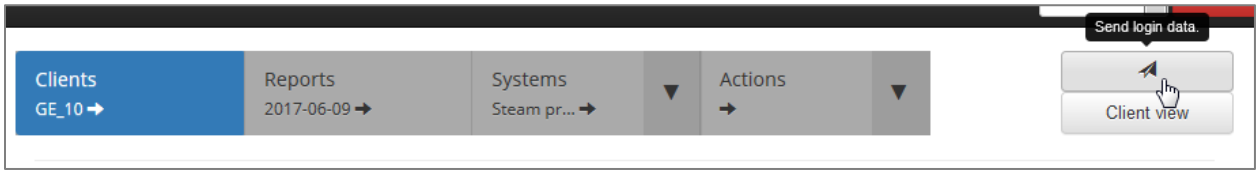
Clients will find a summary of all proposed actions on their "Dashboard", they can enter new information on energy consumption after implementing an action within the "Monitoring" tool. They can see a Gantt chart for the realization management for the tasks of proposed actions and assign their "Energy Team". You will learn more about client functionalities in chapter 4.

After clicking “Auditor view” you will get back to the auditor part of the EnMC.

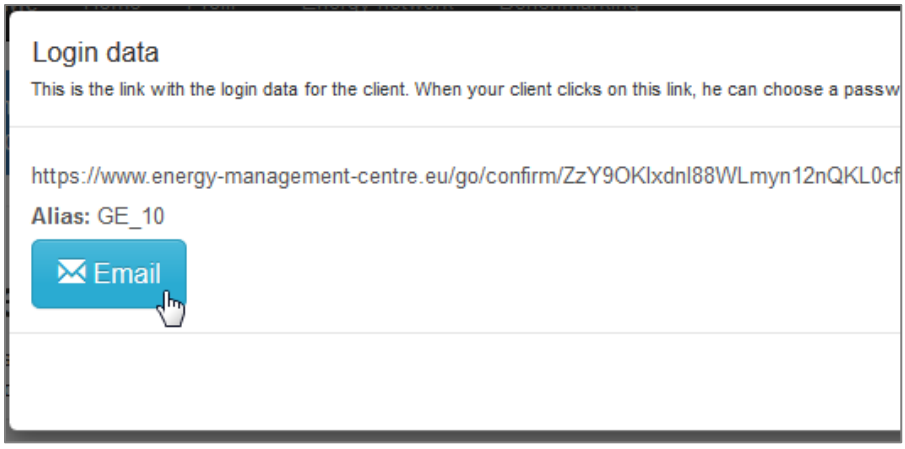


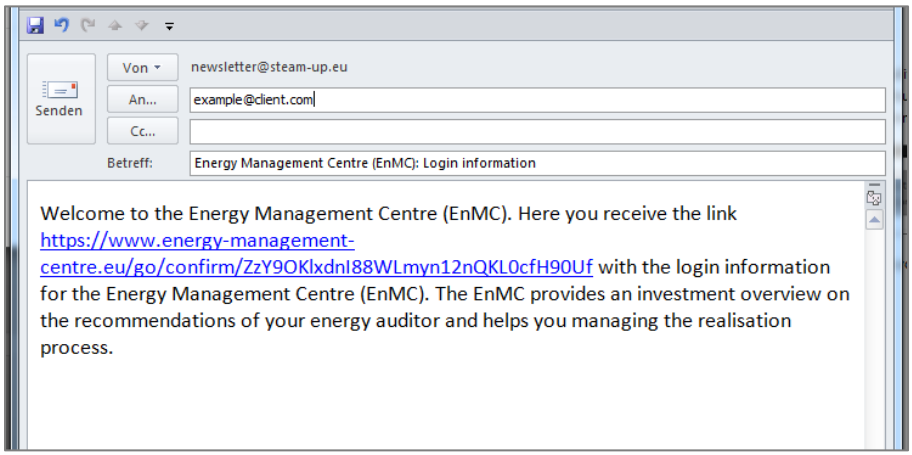
3.8. Send login data to clients

After you finalized all entries out of the audit report into the EnMC you want to give your client the possibility to work with the information. You need to click on the “paper plane” on the top right to create a link for your client. When your client clicks on this link he can choose a password and log in.



You can either copy the link and send it to your client or click on “Email” and a standard mail template will appear including the link.



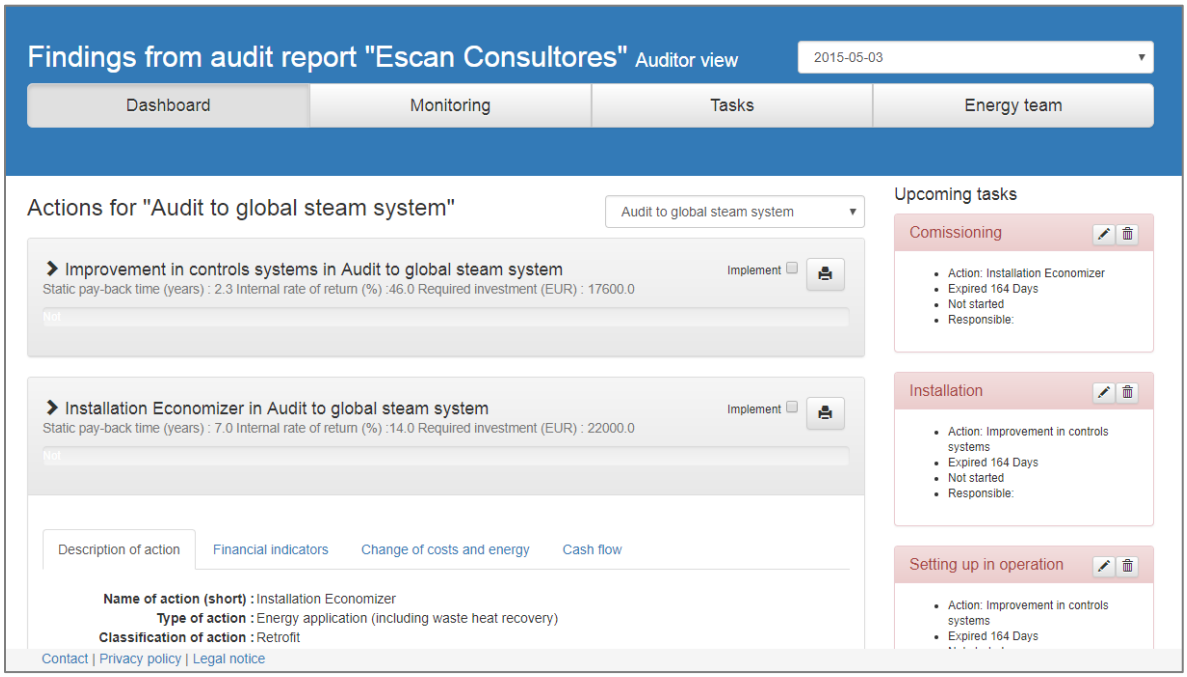


4. Client view and management

Clients have a different management system screen than the auditor. The client and the auditor can monitor the results of the energy efficiency measures detected by the auditor and manage their implementation.

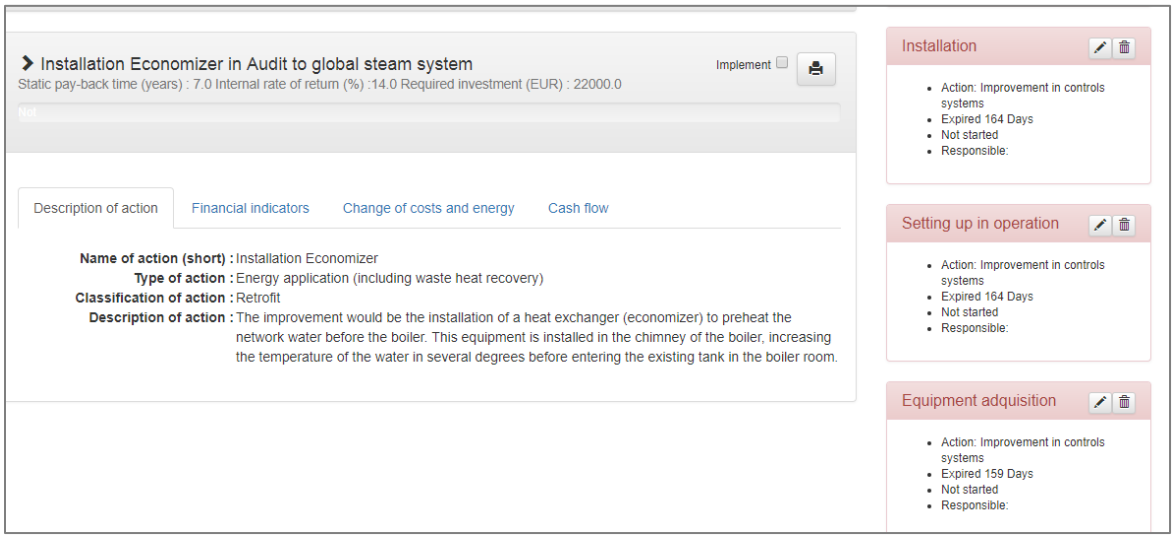
4.1. Actions for all systems in the Dashboard

The energy efficiency measures and their economic data for the audit selected, as well as details on the upcoming tasks are represented in this screen, starting at the “Dashboard"

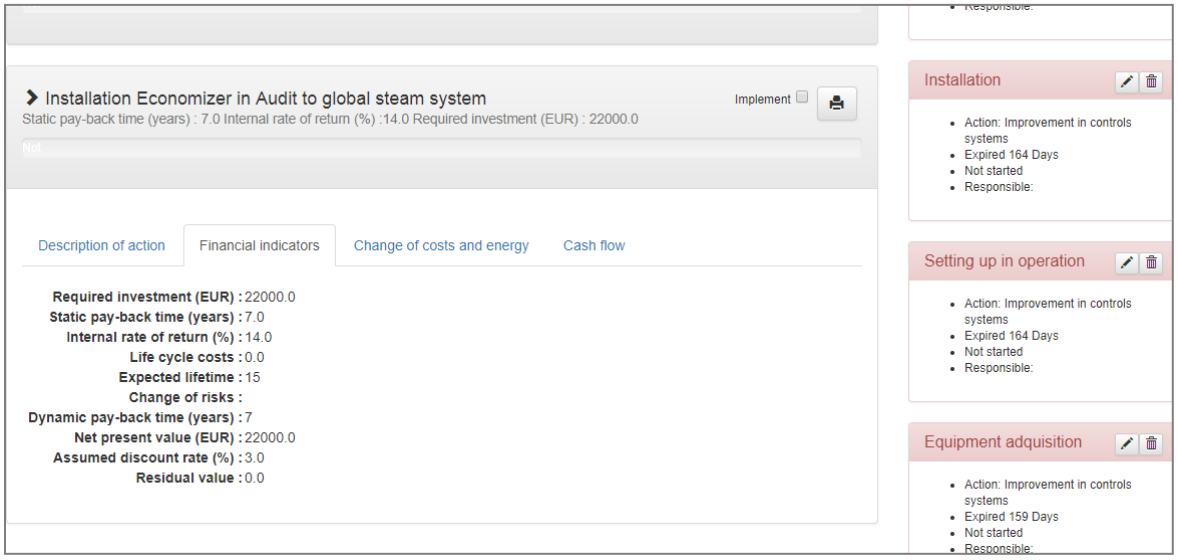


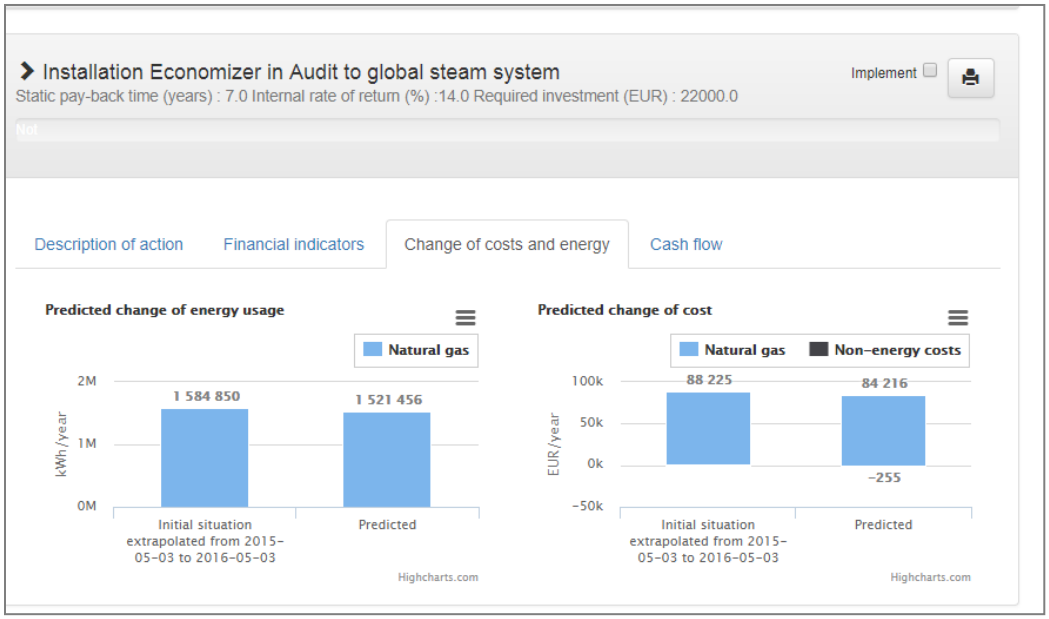
A relevant outcome is the possibility to print the following two pages report by clicking on the “printer” to the action selected.

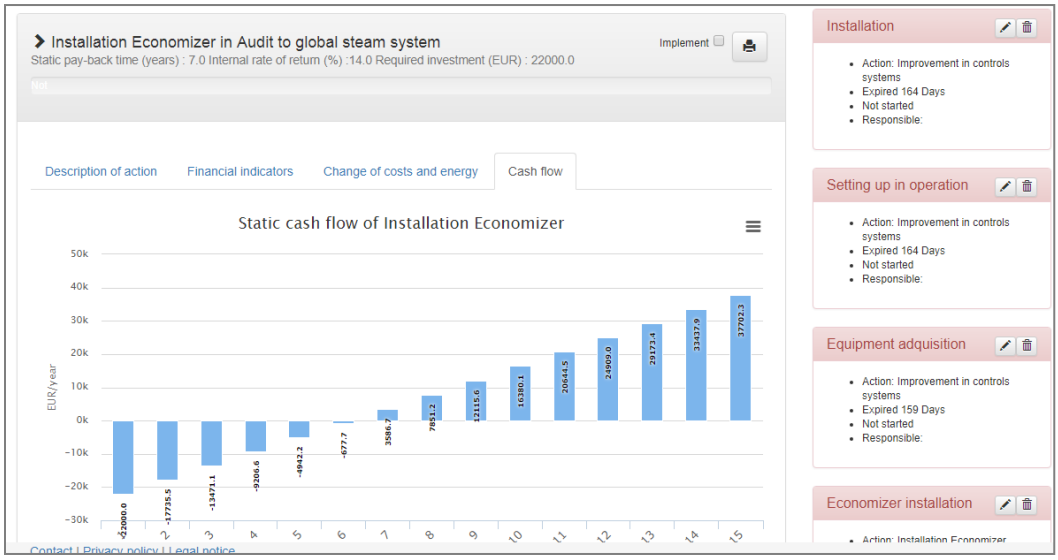
In the tab “description of action” in the Dashboard the action is described.



Also the “Financial indicators", “Changes of costs and energy", and “Cash Flow" are presented in the tabs for each action.




Installation Economizer in Audit to global steam system
Static pay-back time (years) : 7.0 Internal rate of return (%) :14.0 Required investment (EUR) : 22000.0
Implement
Description of action
Financial indicators
Change of costs and energy
Cash flow
Predicted change of energy usage
Natural gas
2M
1M
0M
kWh/year
1 584 850
1 521 456
Initial situation extrapolated from 2015-05-03 to 2016-05-03
Predicted
Highcharts.com
Predicted change of cost
Natural gas
Non-energy costs
100k
50k
0k
-50k
EUR/year
88 225
84 216
-255
Initial situation extrapolated from 2015-05-03 to 2016-05-03
Predicted
Highcharts.com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Financial indicators
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Cash flow
Static cash flow of Installation Economizer
EUR/year
50k
40k
30k
20k
10k
0k
-10k
-20k
-30k
-22000.0
-17735.5
-13471.1
-9206.6
-4942.2
-677.7
3586.7
7851.2
12115.6
16380.1
20644.5
24909.0
29173.4
33437.9
37702.3
1
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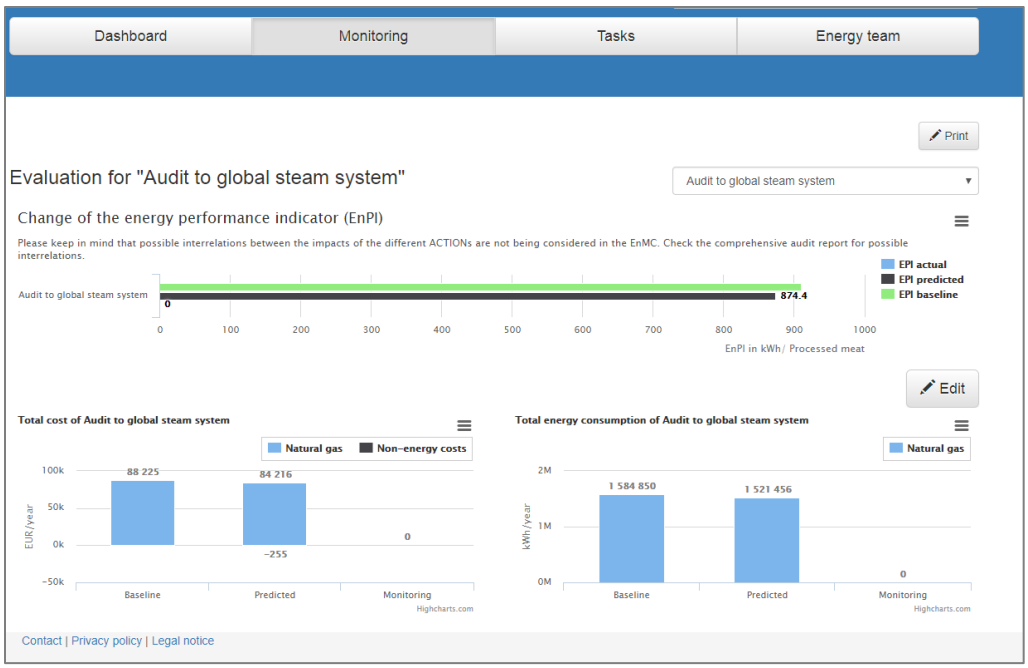
14
15
Contact | Privacy policy | Legal notice
Installation
Action: Improvement in controls systems
Expired 164 Days
Not started
Responsible:
Setting up in operation
Action: Improvement in controls systems
Expired 164 Days
Not started
Responsible:
Equipment adquisition
Action: Improvement in controls systems
Expired 159 Days
Not started
Responsible:
Economizer installation
Action: Installation Economizer

STEAM UP

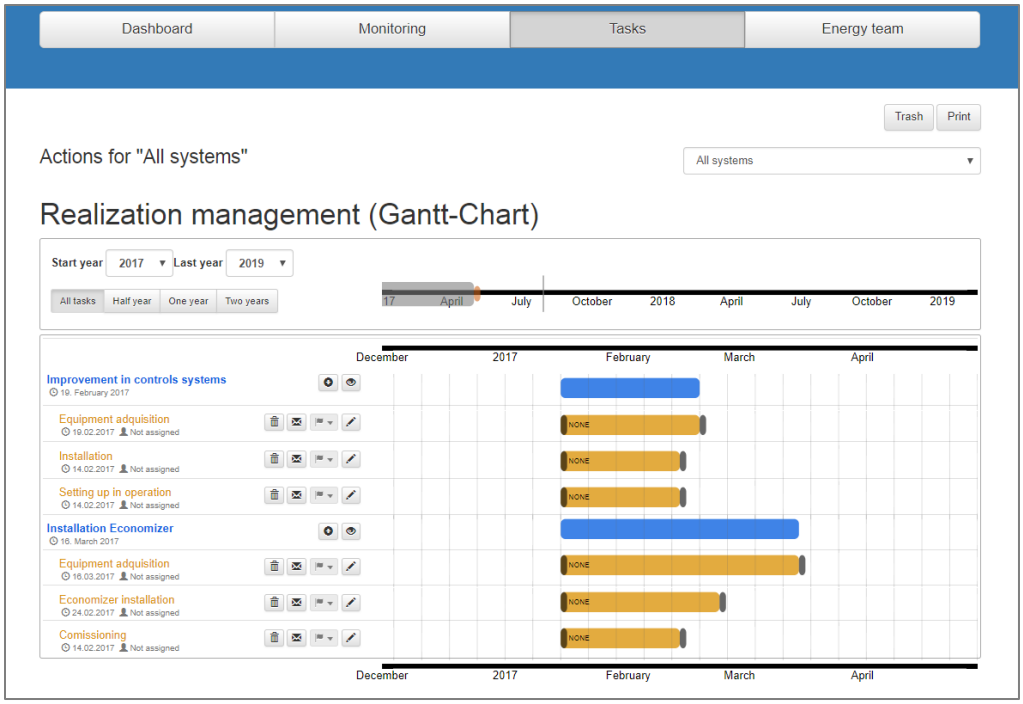
4.2. Monitoring of the audit EnPI (Energy Performance Indicator)

The baseline, actual and predicted EnPIs can be managed by this screen.



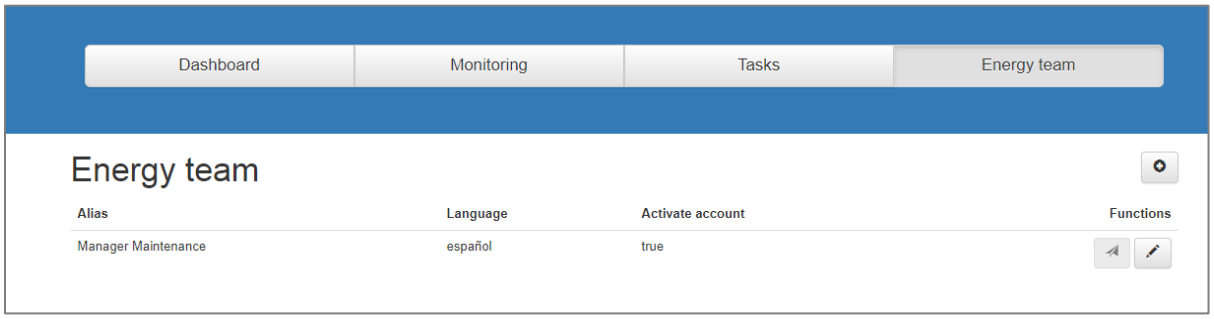
4.3. Management of realization by Gantt chart

By clicking on “Tasks", a Gantt chart with specific tasks for each action can be managed.

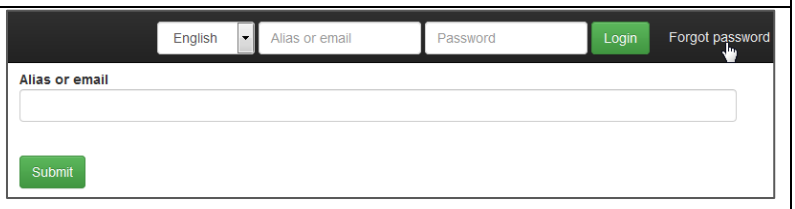


STEAM UP

And finally, the people responsible for the implementation of the tasks can be assigned and managed.



5. FAQs

Question	Answer
In which languages is the EnMC available?	The EnMC is available in English, Czech, Danish, Dutch, German, Greek, Italian and Spanish.
Where can I find the EnMC?	The EnMC is accessible via: www.energy-management-centre.eu
Can I use the EnMC only for steam related audits?	The EnMC was developed within the SteamUp project ("Steam and management under pressure") which has been funded by the EC (Horizon 2020 programme). Steam Up aims to assess the substantial and easy to reach energy-saving potential of steam systems in heavy industries, to support the EU objectives for energy efficiency. In order to create a greater added value, the EnMC was created in a way that makes it suitable for any energy audit.
How much do I need to pay to use the EnMC?	The use of the EnMC is free for everyone.
I registered but did not receive a validation link via mail. How can I finalize the registration process?	If you did not receive an email containing the validation link to finalize your registration process, it might be possible that this mail arrived in your spam folder.
I forgot my password, how can I create a new one?	

	When you open the EnMC just click on “Forget password” right next to the login fields on top the page. Enter your email or alias and a link to create a new password will be send to your mail address.
Which decimal separator should I use?	Within the EnMC a comma “,” is used as decimal separator.
How is data privacy kept within the EnMC?	As strongly recommended by Auditors, we follow an approach where personal data of companies is not needed. Please read the statement of online data protection policy for www.energy-management-centre.eu here: https://www.energy-management-centre.eu/companyInfo.xhtml?type=PRIVACY_POLICY
How can I delete my EnMC account?	If you want to delete your EnMC account just write a short Email to schroeer@adelphi.de and your account information will be deleted.