Enerit ISO 50001 Energy Manager Pro

User Guide

Version 1

Date: 23rd April 2015

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1 Introduction

This is a user guide for using and administering all parts of the Enerit ISO 50001 Energy Manager Pro Software. The aim of this document is to provide help and instructions for all current and potential users of the online software giving them a useful guide to explain the routine of the most used commands.

Note: Authors intention is to match pictures of each chapter with the ones relative to the platform which the guide is referred. Sometimes pictures may be extracted from other versions of the Enerit tool platform and may vary slightly. We endeavor to keep the contents as up to date as possible.

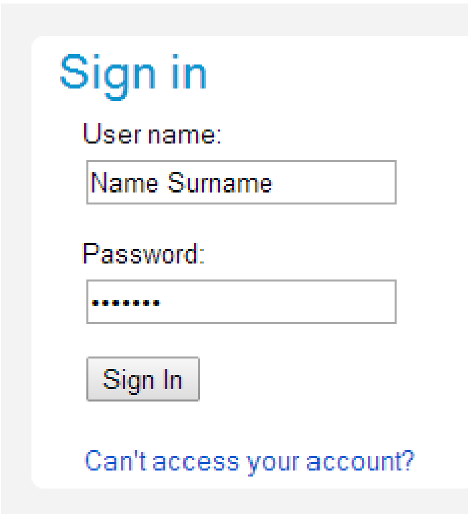
2 Getting Started

2.1 Login

To access the portal, follow these steps:

1) Open your web browser
2) Go to the online platform using your unique URLlink similar to the following: https://XYZCompany.en16001.com/0010/UEB_Documents.nsf/SankeyDashboard

3) Sign in with your access data by filling in the requested fields:
   - User name
   - Password (during the typing this field won't be displayed, appearing as a string of asterisks)



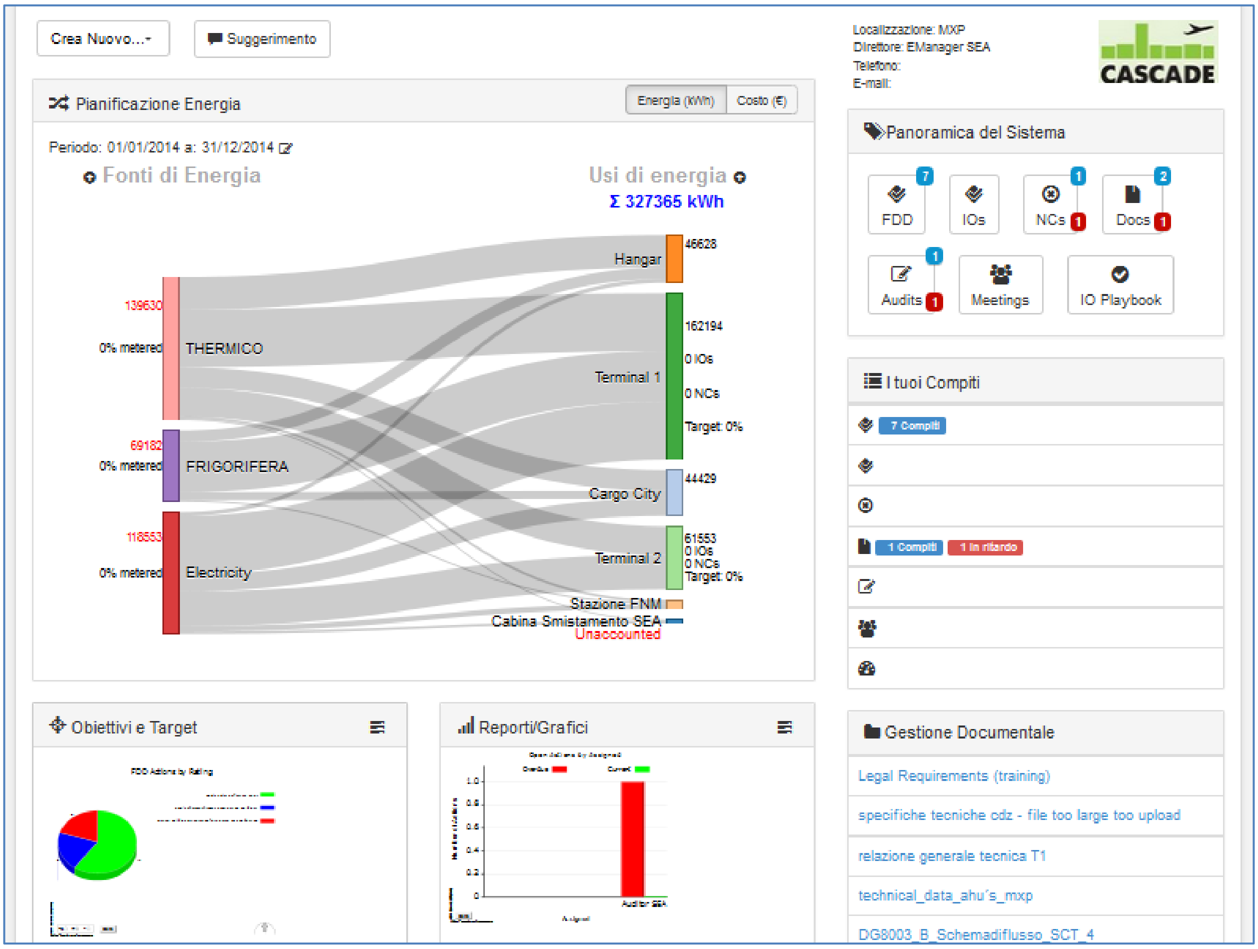
Sign-in mask

After the log in, you will be redirected to Enerit Dashboard: hence you can act as allowed to your account profile (see next page for example view of the Dashboard.)

2.2 Logout

If you want to exit portal, click at any time on the logout sign placed on the top right corner of the window.

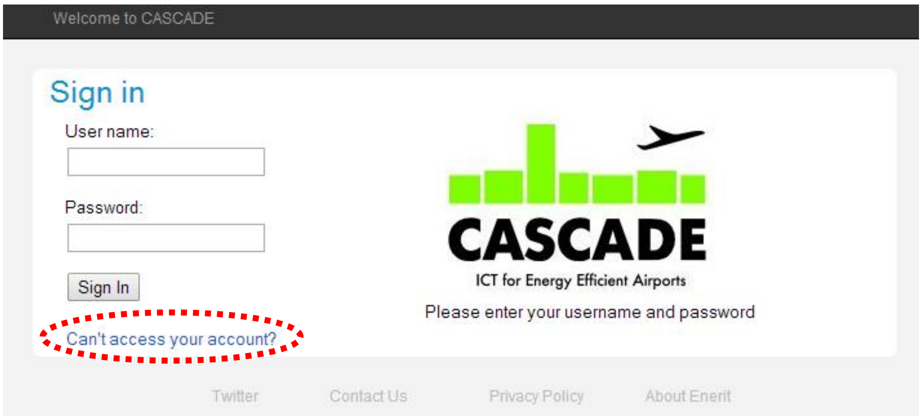
Logout button



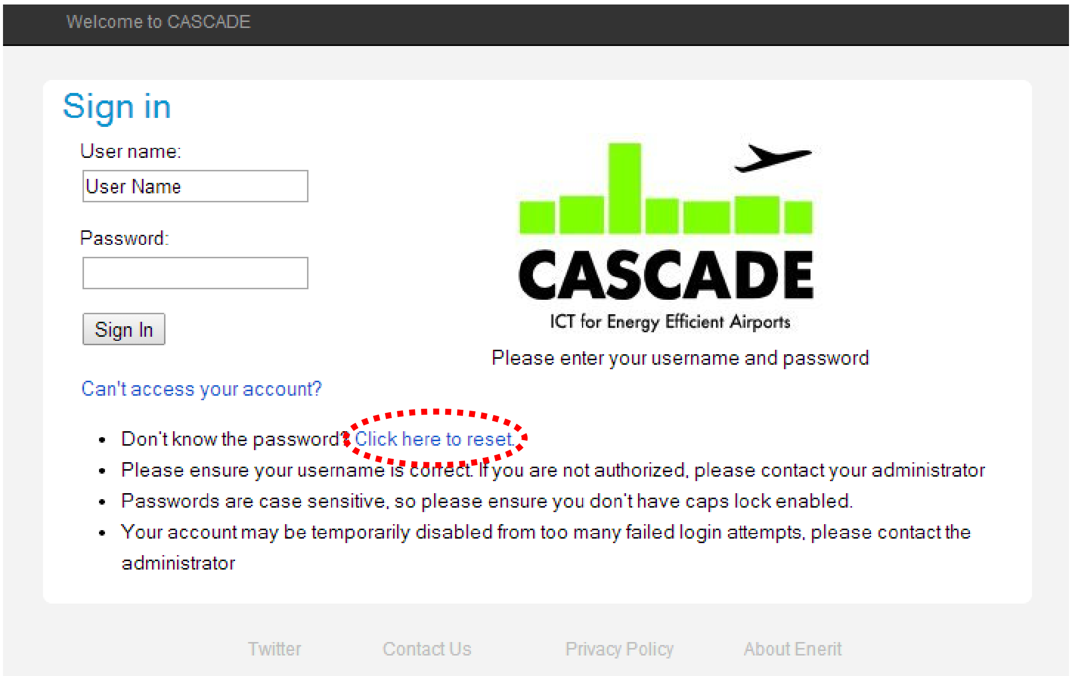
2.3 New password request

If you your password gets lost, or if you just want to change it, please follow these steps:

1) On login mask, click on the link “Can’t access your account?” (see figure below)



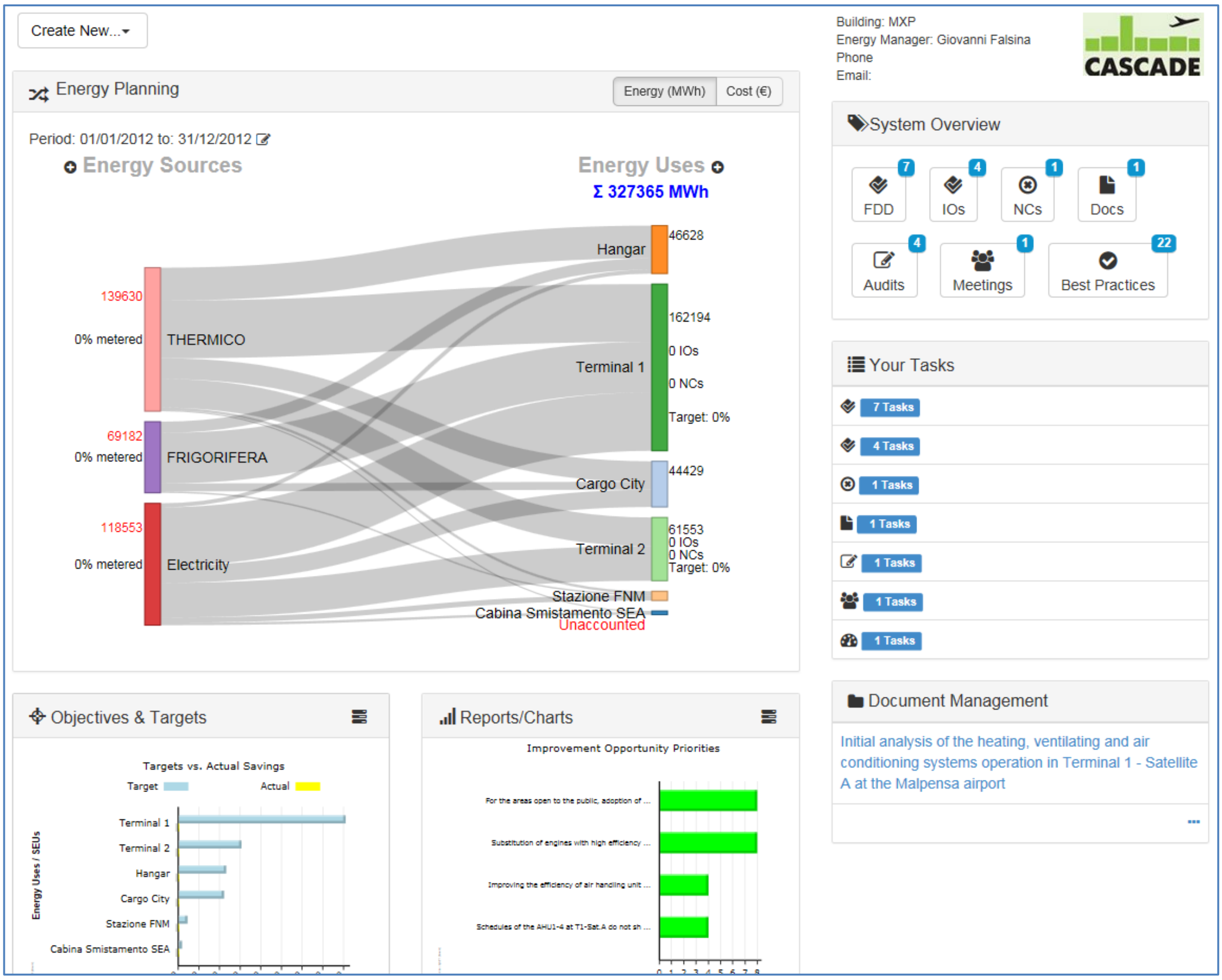
2) After inserting your username, click on the link “Click here to reset” that be displayed on screen



3) A new auto-generated temporary password will be sent to the mail address you provided
4) After the first login the system will force a manual password reset

3 Dashboard Overview

3.1 Overview



3.2 Access Level

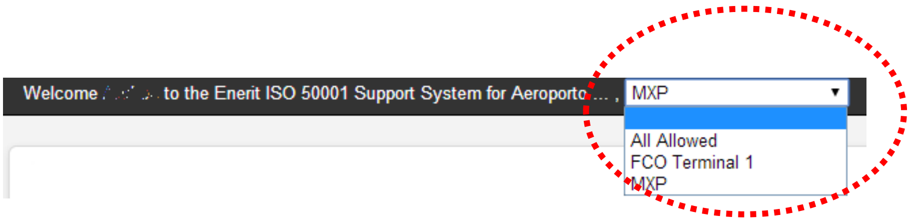
There are three different access level, with different permissions and privileges. The table below reports the differences among the users typologies.

Reader Access	***Responder Access***	***Full Access***
▪ Overview ▪ View of all documents ▪ Create a suggestion Visualization options: ▪ Dashboard	All Reader Access features plus: ▪ Interaction with "Your tasks" widget ▪ Carry out energy savings actions ▪ Validate energy savings for Actions	All Responder Access features plus: ▪ Close Energy Savings Actions ▪ Create Improvement Opportunity ▪ Priorities and Assign Energy Savings

▪ Objectives & Targets ▪ EFA / SEUs ▪ Improvement opportunities ▪ Action plan ▪ Standard ▪ Audits ▪ Nonconformities ▪ Meetings ▪ Consumption data	Carry out: ▪ Actions for Nonconformities ▪ Actions related to Audits ▪ Actions related to Meetings ▪ Action related to Energy Uses / SEUs	Actions ▪ Build / Edit the EFA Create: ▪ Documents ▪ Consumption Data ▪ Create and notify user about an Audit ▪ Create a Nonconformity ▪ Prioritise and Assign Actions for NC ▪ Close an Action for NC ▪ Create and invite users to Meetings ▪ Admin Access ▪ Export Data to CSV spreadsheet

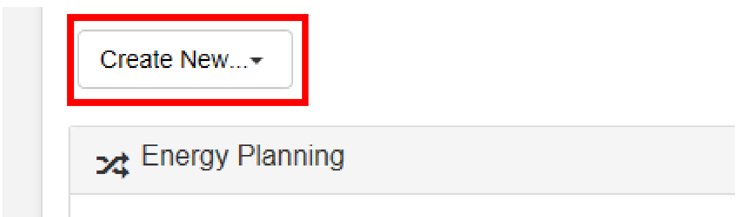
3.3 Selecting Locations

The drop-down menu highlighted in red shows the current Location assigned to the user and other locations that the user has access to view information.



By clicking on it, the list of the visualizations/locations that can be chosen by the user is shown.

3.4 Create New Button

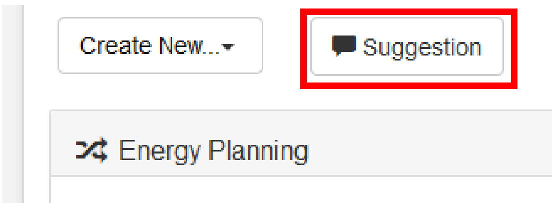


This option is only available to FULL LICENSE users. It opens a drop-down menu which commands are:

1) Document Management
   a. Document – creates a new document
2) Planning
   a. Improvement Opportunity
   b. Energy Usage
3) Checking
   a. Audit
   b. Benchmark Data

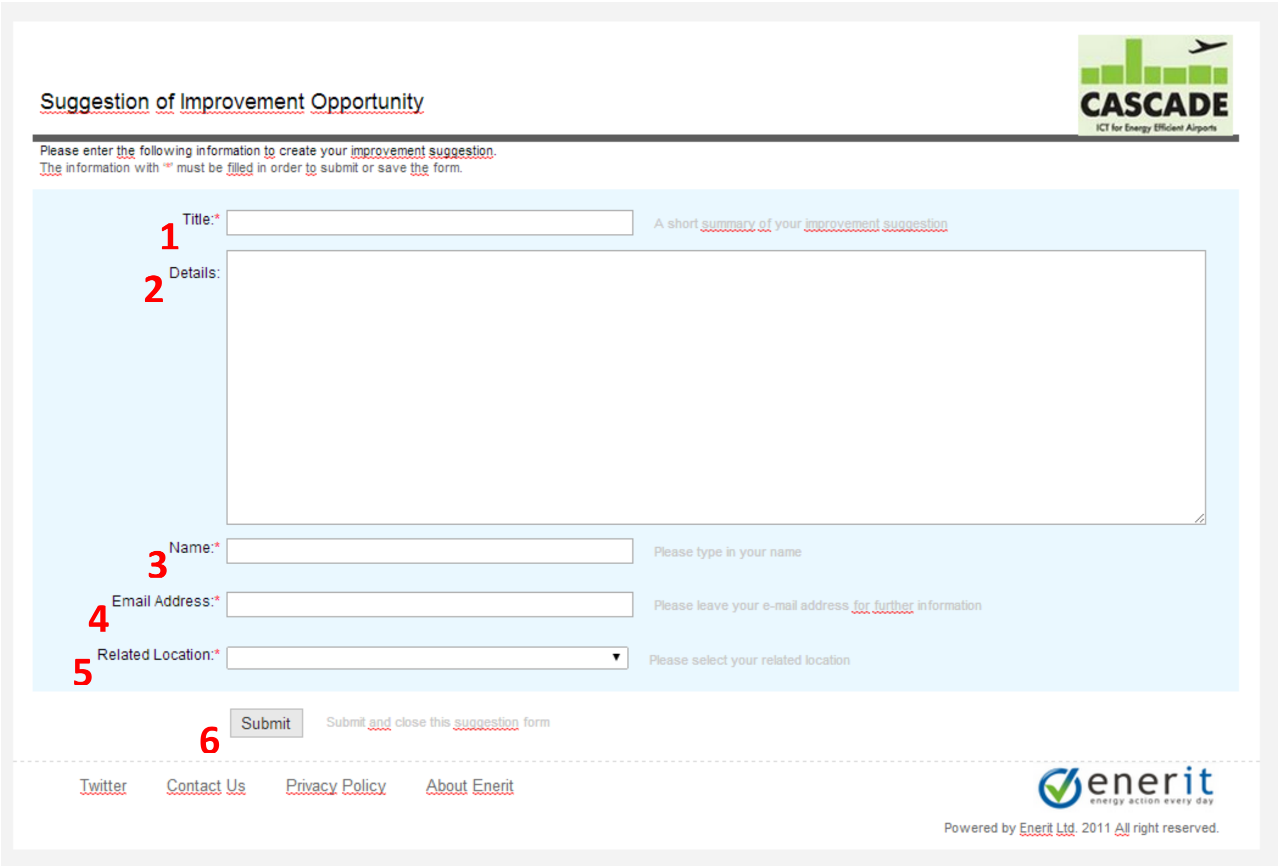
   c. Meeting
   d. Nonconformity
4) Consumption Data
   a. Diesel
   b. Electricity
   c. LPG
   d. Natural Gas
   e. Oil
   f. Petrol
   g. Thermal
   h. Water
5) Admin
   a. Keyword
   b. Location
   c. Sub-Location
   d. Unit

3.5 Energy Saving Suggestions



The Energy Management dashboard has a button that is available to all staff in your organizations to submit suggestions to the energy management team. All new suggestions are automatically created as new Improvement Opportunities and the \energy Manager is automatically notified of the new suggestion.

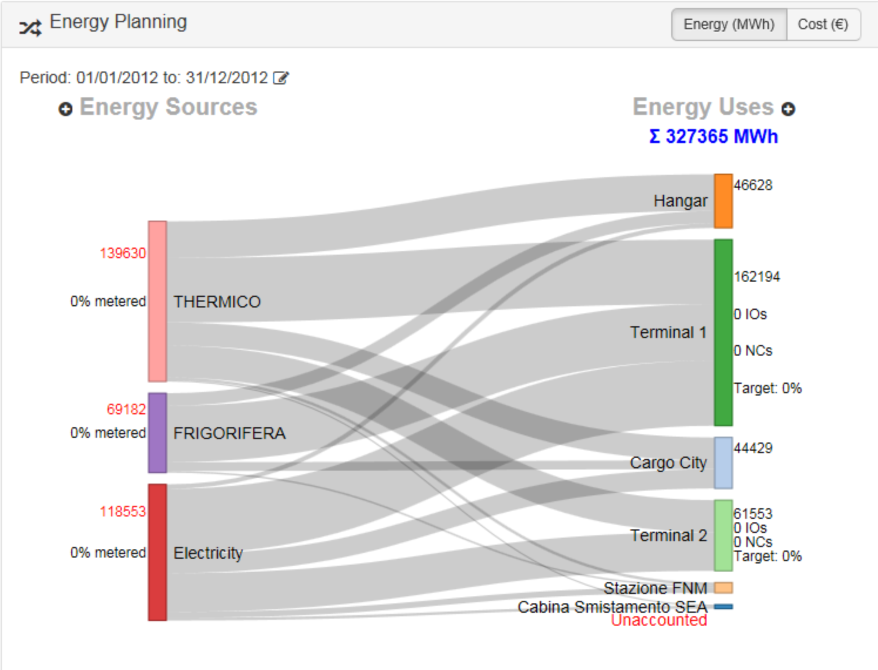
By clicking this button, the suggestion form will open: it allows you to send "Suggestion of Improvement Opportunity" to the Energy Manager.



Fields:

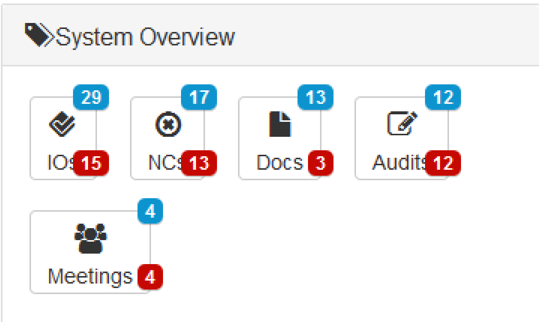
1. Title – title of the suggestion
2. Details – detailed proposal with detailed description of:
    - Location of the improvement (main location, plant, circuit)
    - Required actions
    - Foreseen improvements and savings
3. Name – name of the author of the suggestion
4. Email Address – of the author
5. Related Location – select the location from the drop-down menu
6. After filling and checking all the fields, the suggestion is submitted by clicking on the “Submit” button.

3.6 Energy Planning



The energy planning are allows you to visualize your energy sources and where the energy is being used. Inputting the data for the energy flow (Sankey) diagram and configuring the Energy Planning are detailed in a later chapter on setting up the Energy Flow Assessor.

3.7 System Overview



This custom-in progress window allows users to view the status progress of:

- Improvement Opportunities (IOs)
- Nonconformities (NCs)
- Documents (Docs)
- Audits
- Meetings

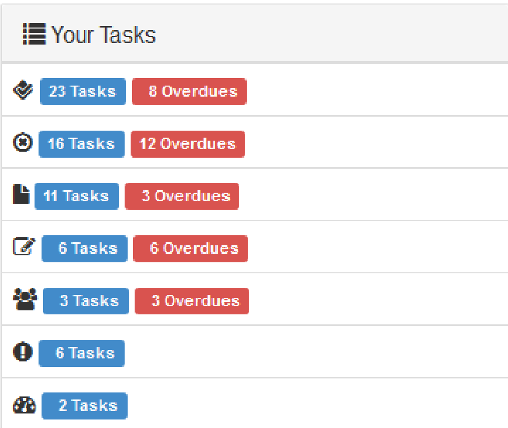
The system Overview can be restricted to only allow certain individuals see this widget e.g. Energy Manager or the system administrator; this can be configured by an administrator through the user settings.

As displayed, the icon can be accompanied by two numbered markers:

- the blue marker points out the total number of items
- the red marker points out the number of overdue items

3.8 Your Tasks

As seen for System Overview, "Your Tasks" shows items that have been assigned to the specific user who is logged into the system. When an item is clicked it shows the status and target date for the items.

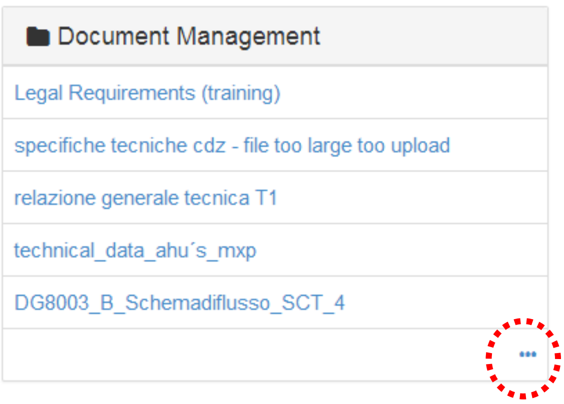


→ Improvement Opportunities
→ Nonconformities
→ Documents
→ Audits
→ Meetings
→ Incidents
→ Energy uses

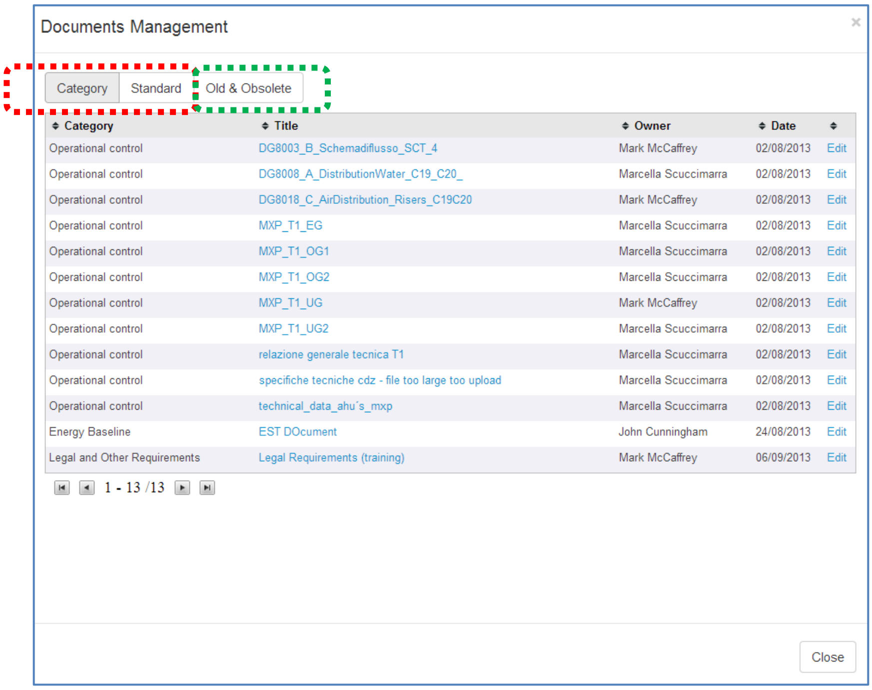
Beside each icon, the total number of tasks assigned to the user appears in the blue box. The numbers of overdue tasks are highlighted in the red box.

3.9 Document Management

The Document Management functionality allows users to manage and control documents related to energy management activities which can then be easily accessed through the Document Management widget. The main Document Management window can be opened by clicking on the button (...) in the picture below.



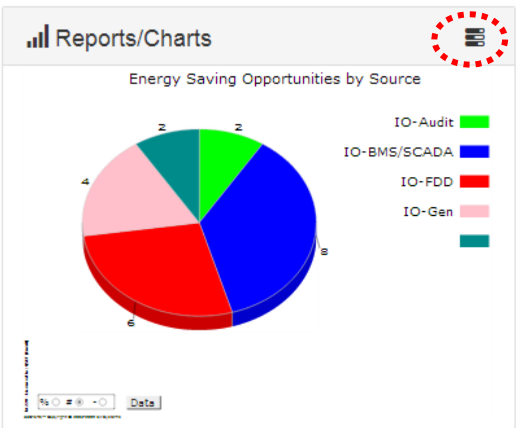
Through this window it is possible to find documents. Documents can be sorted by Category or Standard by clicking on the correct button. By clicking on the Old & Obsolete button, it will be possible to check old documents, if such documents are present. "Close" button (bottom-right) closes the window.

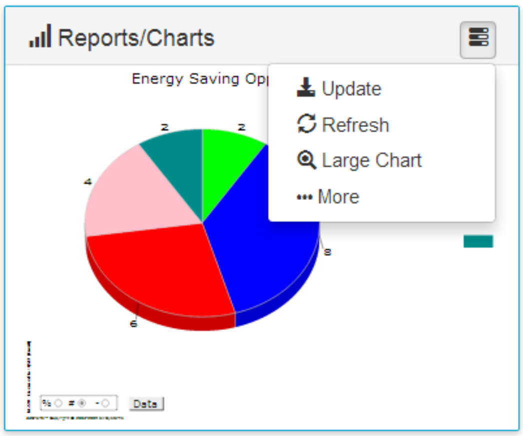


Category	Title	Owner	Date	
Operational control	DG8003_B_Schemadiflusso_SCT_4	Mark McCaffrey	02/08/2013	Edit
Operational control	DG8008_A_DistributionWater_C19_C20_	Marcella Scuccimarra	02/08/2013	Edit
Operational control	DG8018_C_AirDistribution_Risers_C19C20	Mark McCaffrey	02/08/2013	Edit
Operational control	MXP_T1_EG	Marcella Scuccimarra	02/08/2013	Edit
Operational control	MXP_T1_OG1	Marcella Scuccimarra	02/08/2013	Edit
Operational control	MXP_T1_OG2	Marcella Scuccimarra	02/08/2013	Edit
Operational control	MXP_T1_UG	Mark McCaffrey	02/08/2013	Edit
Operational control	MXP_T1_UG2	Marcella Scuccimarra	02/08/2013	Edit
Operational control	relazione generale tecnica T1	Marcella Scuccimarra	02/08/2013	Edit
Operational control	specifiche tecniche cdz - file too large too upload	Marcella Scuccimarra	02/08/2013	Edit
Operational control	technical_data_ahu's_mxp	Marcella Scuccimarra	02/08/2013	Edit
Energy Baseline	EST DOcument	John Cunningham	24/08/2013	Edit
Legal and Other Requirements	Legal Requirements (training)	Mark McCaffrey	06/09/2013	Edit

3.10 Reports/Charts

This widget allows user to access pre-configured charts. By clicking on the top-right button (highlighted in red) a drop-down menu opens.





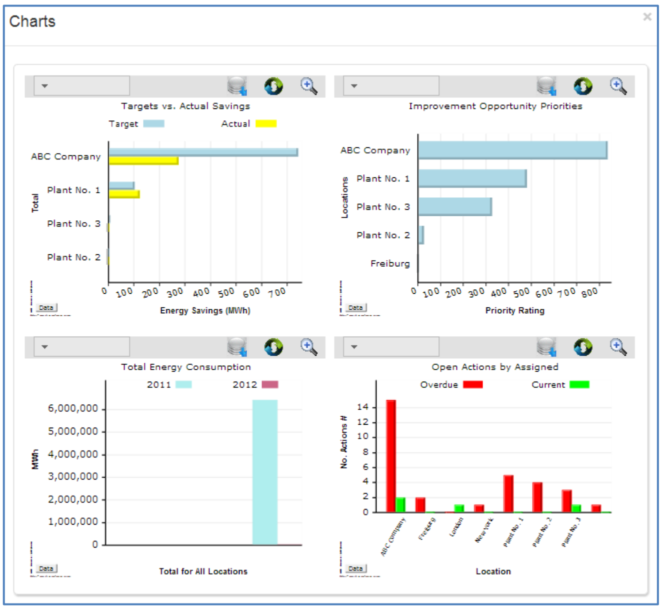
The options are:

- **Update** – updates data behind the report in background
- **Refresh** – the chart refreshes with the new selected options
- **Large Chart** – by clicking this button current Chart gets enlarged to full-window mode inside user's browser

- **More** – this command opens the multiple charts window. For more details see Paragraph 0.

Multiple Charts view

By clicking on the “More” option (described above, the multiple Charts page opens.

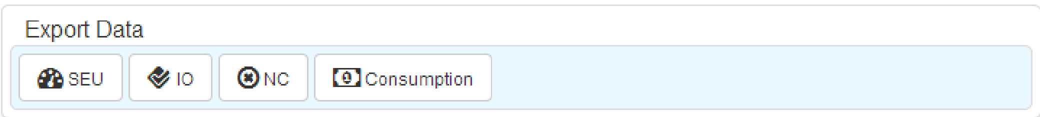


Selectable commands are:

- **Change chart** – the first field allows to choose main category/location/plant; the second field shows the specific sub-category/assignment/sub-location
- Update
- Refresh
- Large Chart

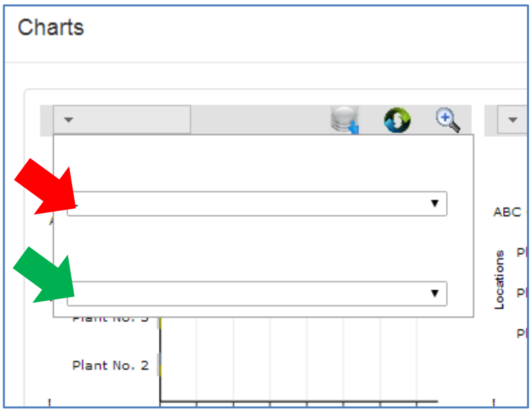
The default charts that appear in the multiple charts view are defined in the Location document (see section 11.1 in the Administration chapter.)

How to export charts data



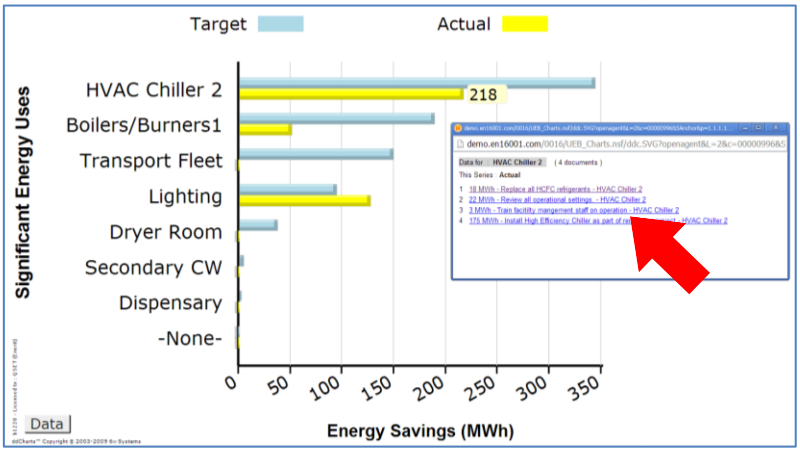
Using the bottom control panel you can also export a CSV spreadsheet containing all the information stored in the Enerit software related to:

- SEU – Significant Energy User
- IO – Improvement Opportunities/Actions
- NC – Nonconformities
- Consumption Data

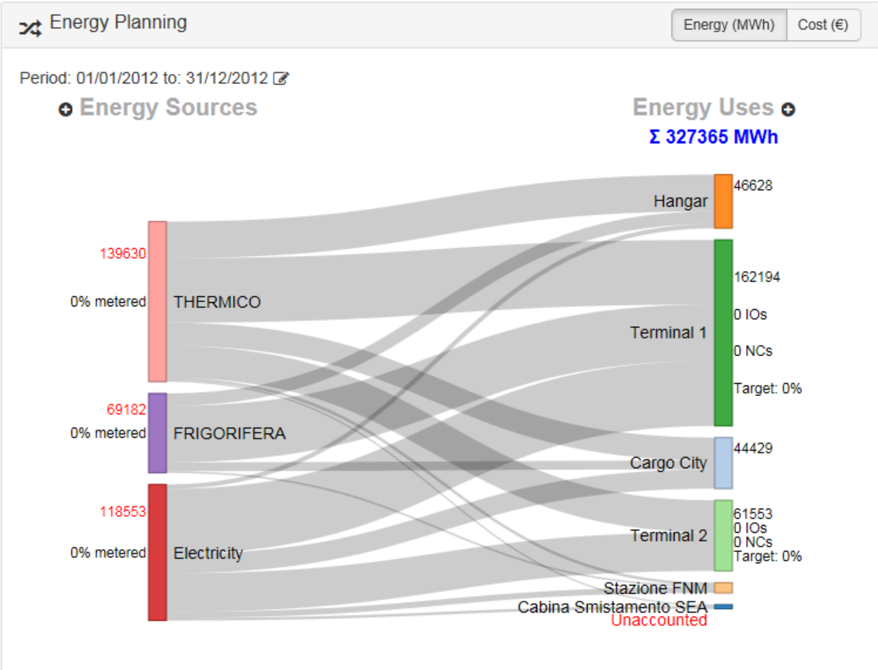


Interaction with a single chart

All of the Charts are interactive: By clicking the chart it will allow you to drill down through the different levels of the chart and access the chart data.



4 Energy Flow Assessor

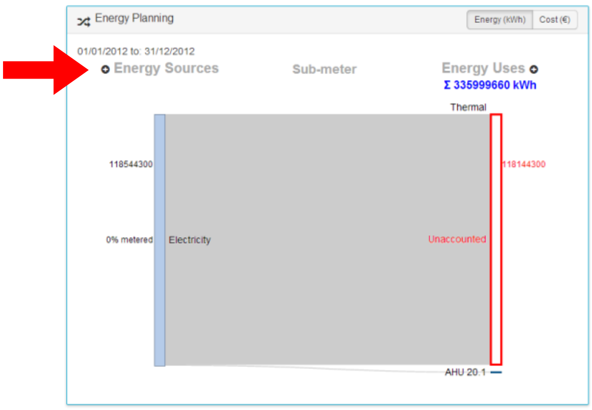


The energy Flow Assessor allows you to account and visualize your supply of energy sources (e.g. Electricity, Natural Gas etc.) and where it is being used (Energy Uses e.g. Terminal Buildings, Chillers etc.)

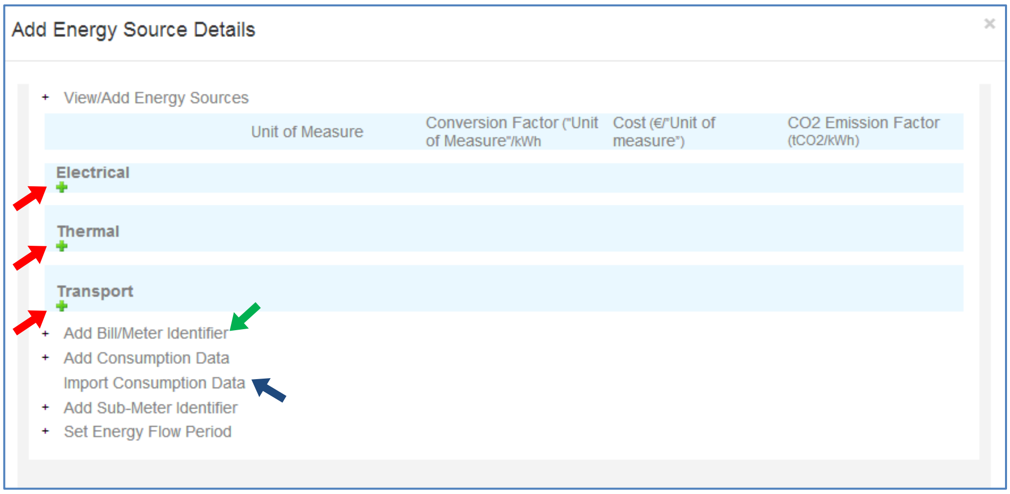
The Enerit Energy Flow Assessor functionality is integrated into the software platform. The following describes how to configure the Energy Flow Assessor.

4.1 Identifying Energy Sources

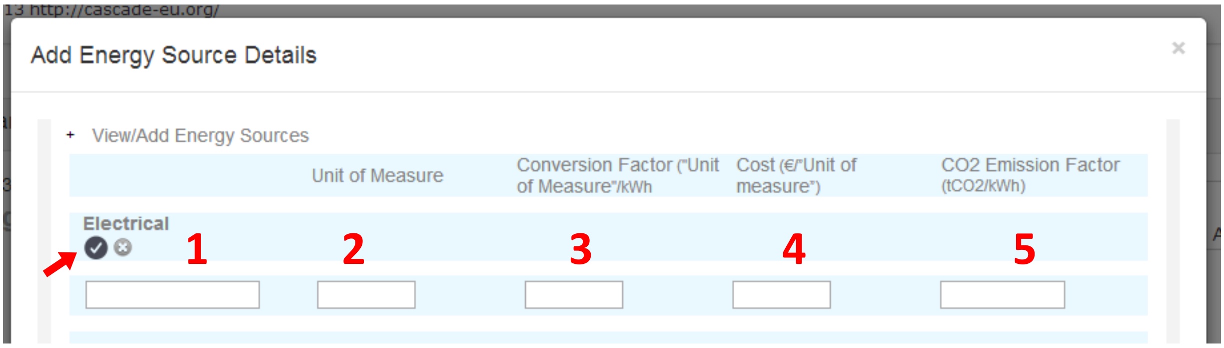
In order to add an Energy Source, click on the “+” button



This action opens the “Add Energy Source Details” form.



By clicking on the green plus button (red arrows), five fields appear: they must be filled by the user in order to identify the energy source.

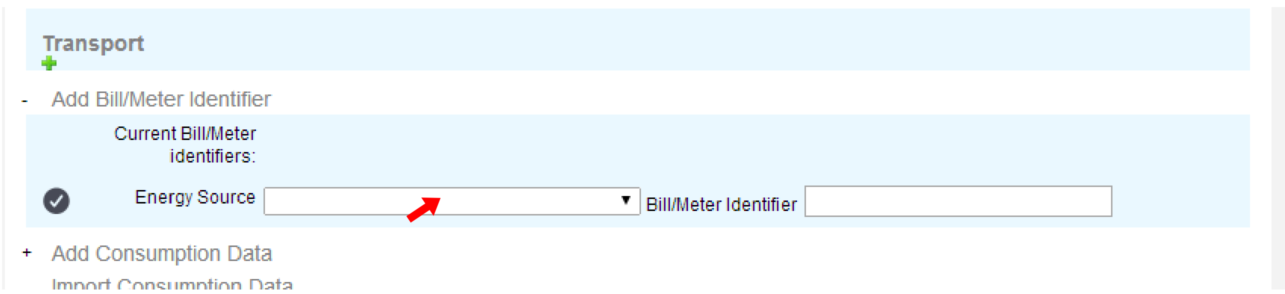


These fields are:

1) Name of the Energy Source – type (e.g. Electricity, Natural Gas)
2) Unit of Measure: This is the units that are used to record the specific energy sources. This can be from utility bills. Electricity is typically measured in kWh but Natural Gas may be measured in m3.
3) Conversion factor of unit of measure inserted to kWh (e.g.: if the company already uses kWh, this factor will be 1. If the used measure is MWh, the factor will be 1000)
4) Cost, in € per Unit of Measure
5) CO2 Emission Factor in tons of CO2 per kWh

When the above data is entered, click on the "check" button (red arrow).

4.2 Specifying Bill / Meter Identifiers



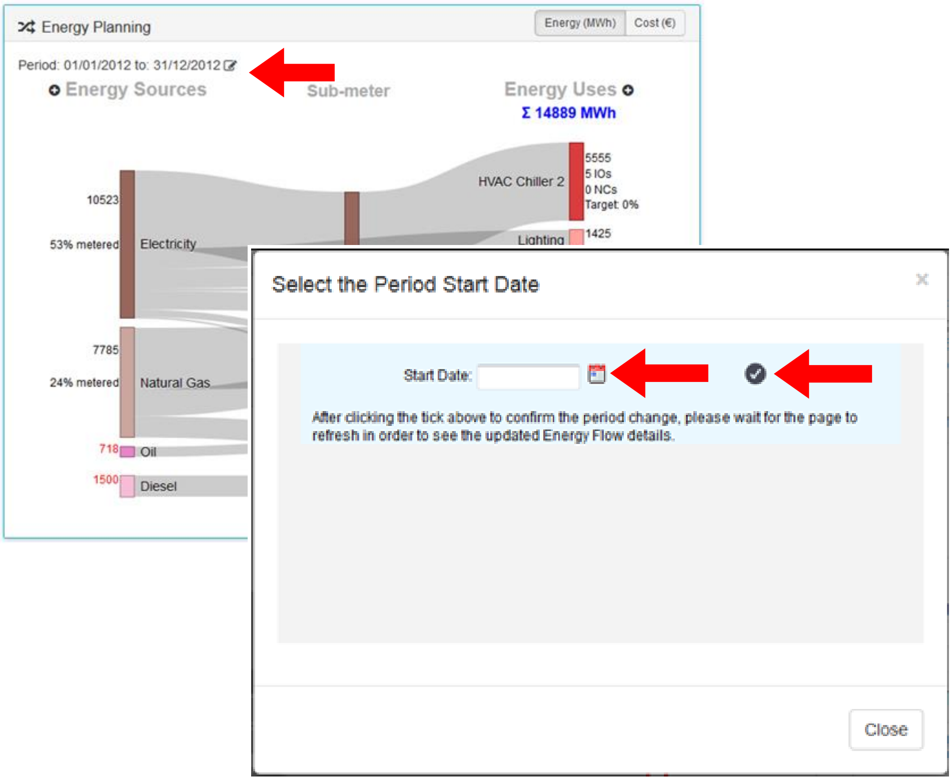
Specifying bill/meter identifiers

To specify a bill or to add a meter identifier, click on “Add Bill/Meter Identifier”, then:

- From the drop-down menu, choose which Energy Source does the bill/meter applies to
- Insert an identifier/name in the second field

4.3 Choose period data range

The period range can be changed using the edit button beside the period dates above the energy flow diagram.



4.4 Importing Energy Source Data

Click on the Import Consumption Data link, and then select the file containing historical energy source data extracted from bills or meter readings. Note: you need a file for each Energy Source.

The file must be formatted as in the example below:

A	B	C	D	E	F	G	H	I
Date from	**Date to**	**Energy Source**	**Own Units**	**System Units**	**Cost**	**Location**	**Sub-location**	**Bill/Meter name**
01/01/2014	31/12/2014	Electricity	000	000	000	Location1	Sub-L1	BM Name

Column	Must be filled?	Spreadsheet Format	Notes
A	Always	Date	dd/mm/yyyy
B	Always	Date	dd/mm/yyyy
C	Always	General	Name of the energy source
D	If your data do not use EnMS	General (mandatory)	The system will convert this field in EnMS
E	If your data already use EnMS	General (mandatory)	If the data are inserted in the EnMS, you can input monthly usage
F	If available	General (mandatory)	Total cost per month for the energy
G	Always	General	Name of the Location
H	If available	General	Name of the Sub-Location
I	Always	General	Enter the Bill/Meter name

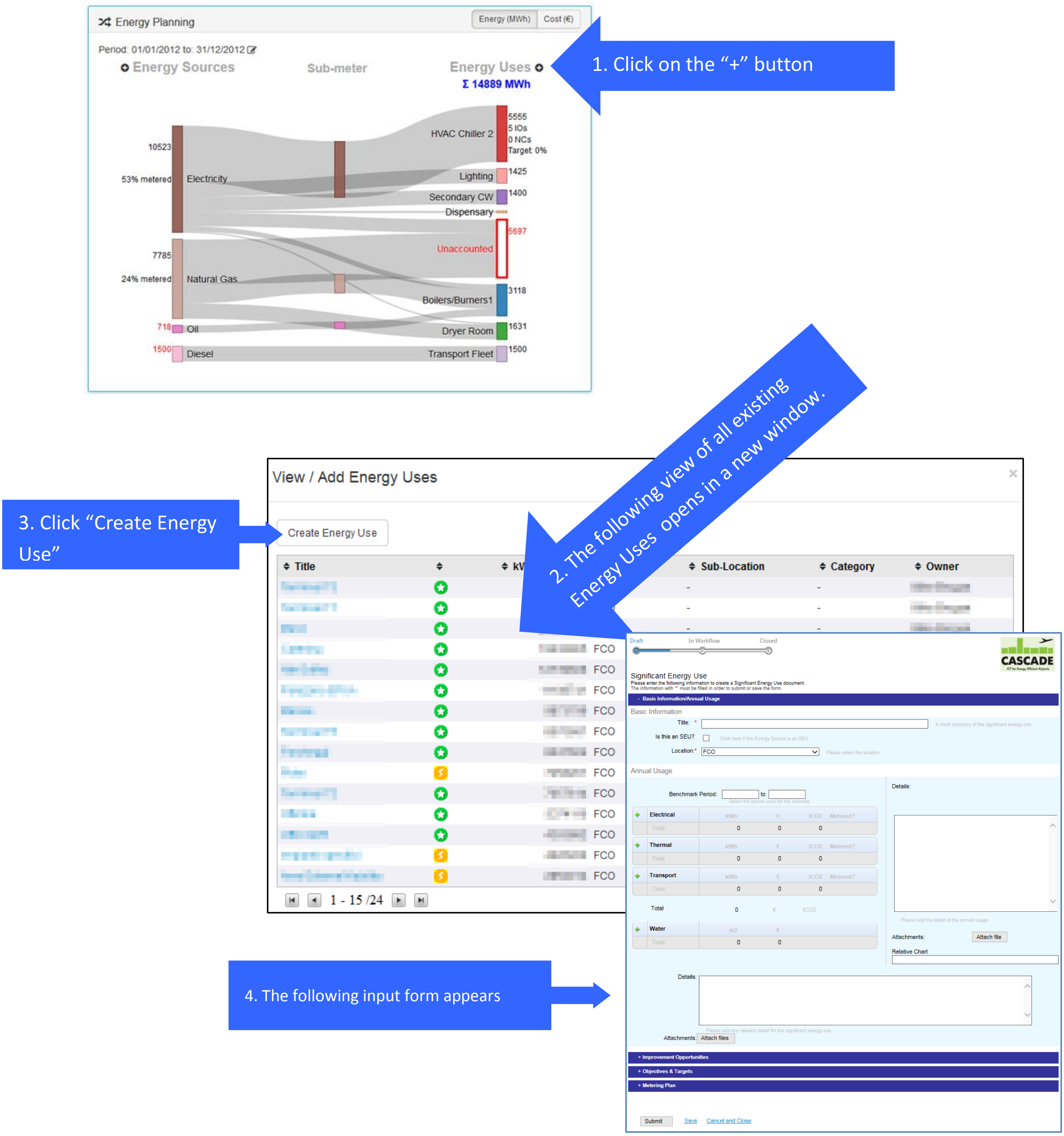
Legend of the data source spreadsheet

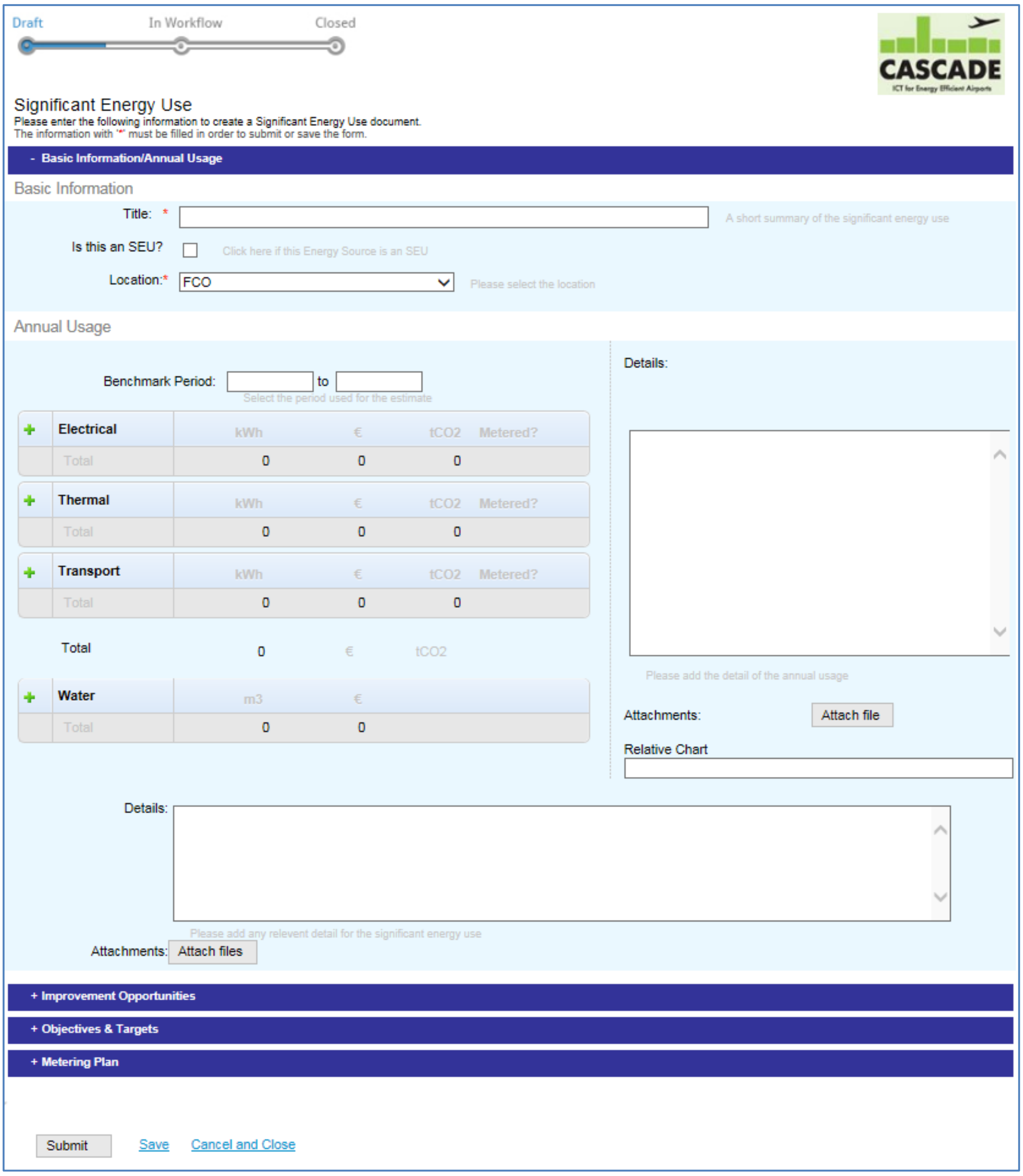
It is important an exact matching between .csv file and keywords.

4.5 Adding Energy Uses

In ISO 50001, an Energy Use is defined as every manner of kind of application of energy (e.g. ventilation, heating, cooling, lighting, etc.).

An Energy Use can be added by clicking on the “plus” button beside the “Energy Use” heading in the Energy Flow Assessor window (or by clicking on the right command of “Create New” drop-down menu)





Enter details as follows:

BASIC INFORMATION

Title – insert the title of Energy Use

Location – select applicable location from drop-down menu

ANNUAL USAGE

Add estimates of the annual energy consumption of the energy sources identified

Details – add details in the blank fields or attaching documents (it is also possible to insert a reference to the Relative Chart)

When ready, click **Submit** and confirm.

See Chapter 0 for instructions on creating and assigning Improvement Opportunities.

See section 6.3 for Setting Energy Use Object & Targets.

5 Improvement Opportunities

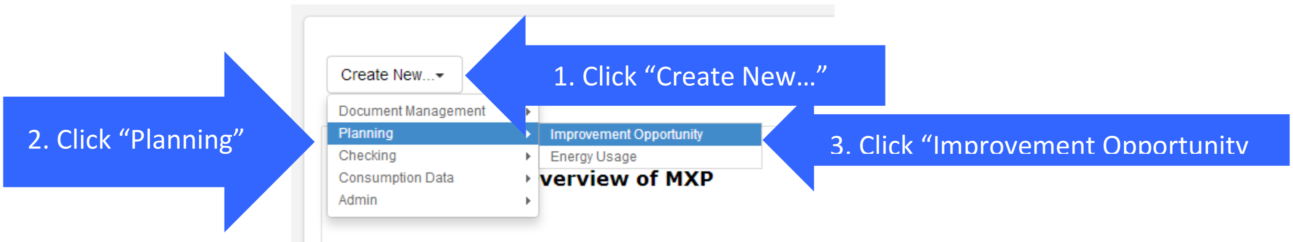
5.1 Overview

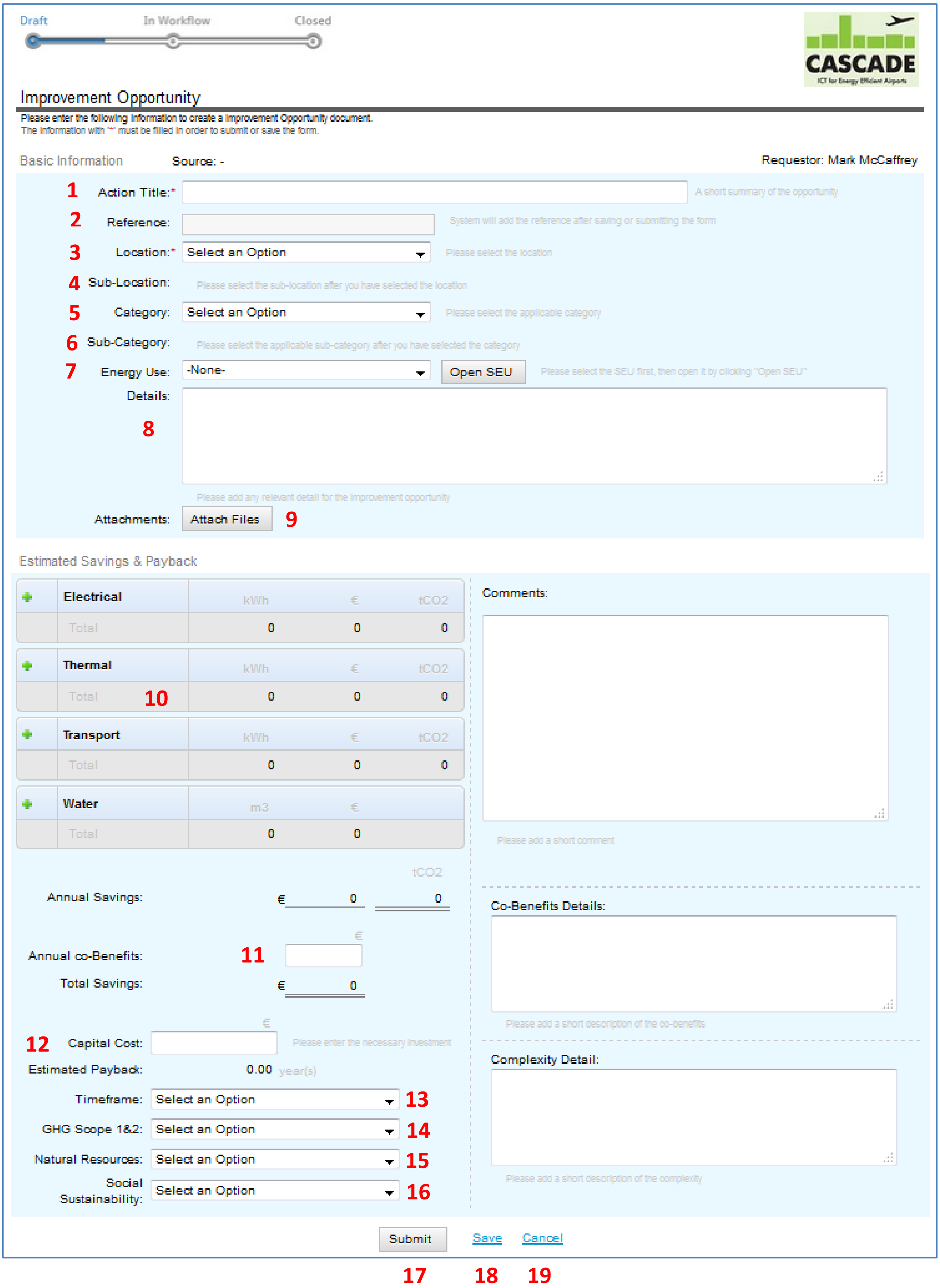
There are many different sources of Improvement Opportunities within the solution. Improvement opportunities can be created manually from many different locations within the software (e.g. "Create New" button, Energy Uses, Meetings and Audits).Section 3.5 describes how to create a suggestion and notify the energy manager of a new potential Improvement Opportunity.

Another source of improvement opportunities is from pre-populated lists. The "Human Pre-Populated" source of improvement opportunities or "IO Playbook". The "IO Playbook" allows the Energy Manager to review a pre-defined list of energy saving strategies and create improvement opportunities to include in his energy management program and plans. Creating improvement opportunities from the IO playbook is described in section 5.3 and the configuration of the "IO Playbook" is described in section 11.5 of the Administration chapter.

First we will look at how to create a "Human" or "Manual" improvement opportunity using the "Create New" button.

5.2 Creating a new Improvement Opportunity





Draft
In Workflow
Closed
CASCADE
ICT for Energy Efficient Airports
Improvement Opportunity
Please enter the following information to create a improvement Opportunity document.
The information with "*" must be filled in order to submit or save the form.
Basic Information
Source: -
Requestor: Mark McCaffrey
1 Action Title:*
A short summary of the opportunity
2 Reference:
System will add the reference after saving or submitting the form
3 Location:* Select an Option
Please select the location
4 Sub-Location:
Please select the sub-location after you have selected the location
5 Category: Select an Option
Please select the applicable category
6 Sub-Category:
Please select the applicable sub-category after you have selected the category
7 Energy Use: -None-
Open SEU
Please select the SEU first, then open it by clicking "Open SEU"
Details:
8
Please add any relevant detail for the improvement opportunity
Attachments: Attach Files 9
Estimated Savings & Payback
Electrical kWh € tCO2
Total 0 0 0
Thermal kWh € tCO2
Total 10 0 0 0
Transport kWh € tCO2
Total 0 0 0
Water m3 €
Total 0 0
Comments:
Please add a short comment
tCO2
Annual Savings: € 0 0
€
Annual co-Benefits: 11
Total Savings: € 0
Co-Benefits Details:
Please add a short description of the co-benefits
€
12 Capital Cost:
Please enter the necessary investment
Estimated Payback: 0.00 year(s)
Complexity Detail:
Timeframe: Select an Option 13
GHG Scope 1&2: Select an Option 14
Natural Resources: Select an Option 15
Social Sustainability: Select an Option 16
Please add a short description of the complexity
Submit
Save
Cancel
17 18 19

Note: A new IO can also be created from, Audits, Meetings, Energy Uses and the IO Playbook.

With reference to picture below are listed the commands to fill in the new Improvement Opportunity form.

Basic Information

1. **Action Title –** insert a title (short description) of the new improvement opportunity
2. **Reference –** this field will be added by system after saving or submitting the form
3. **Location –** select the location from a predefined drop-down list
4. **Sub-location –** select the sub-location related to the location from the list in the drop-down menu
5. **Category –** select from a pre-defined list made by Administration
6. **Sub-category –** select from a pre-defined list in the drop-down menu
7. **Significant Energy User –** Select from list of SEUs ("Open SEU" button allows you to see the details of the SEU)
8. **Details –** enter any additional information about the energy saving idea by filling the field
9. **Attachments** – by clicking on this button, a floating window opens: clicking on "Choose file" will be possible to choose the attachment. Then, clicking on the button with the "clip" picture, the file will be attached to the document

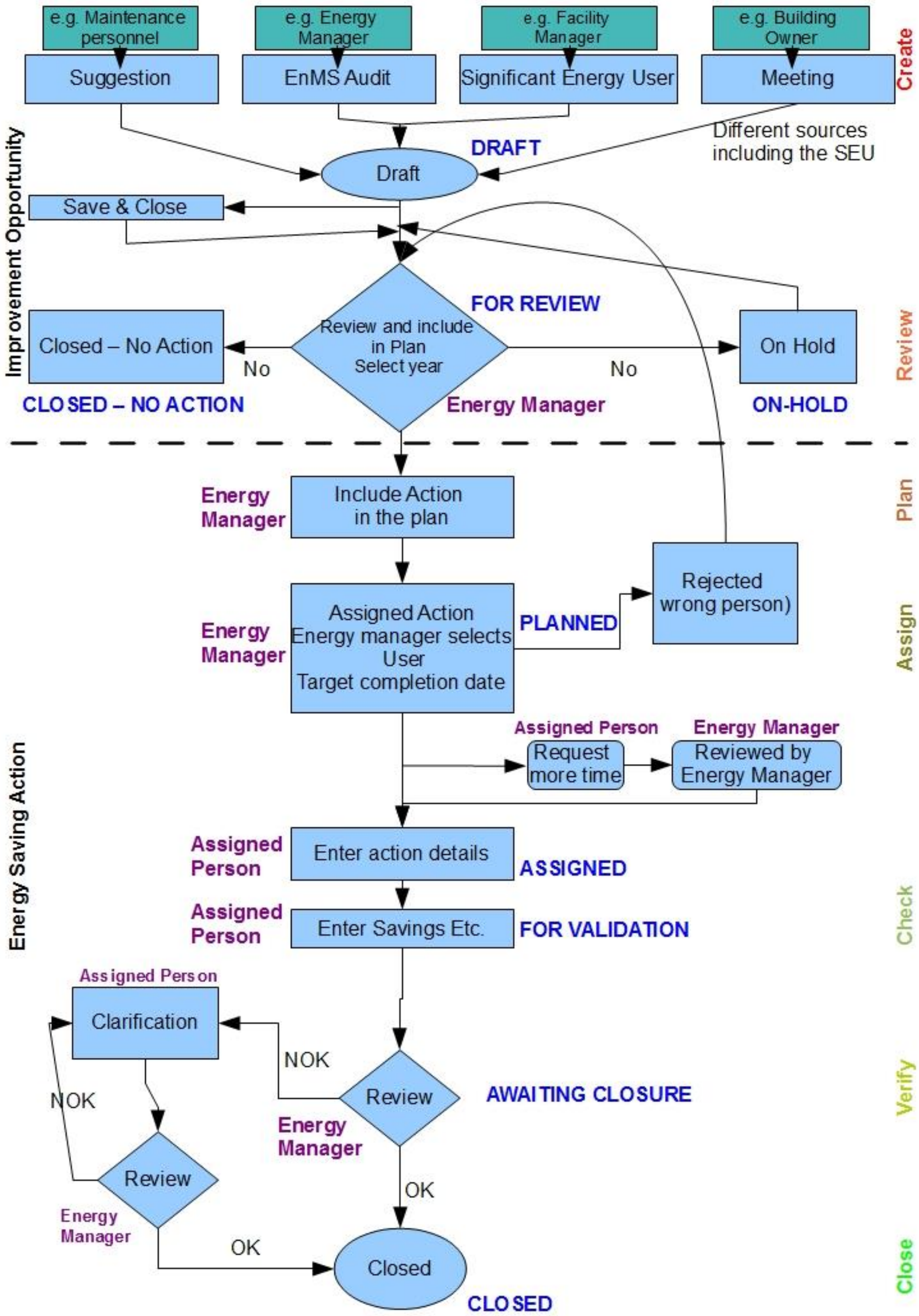
Estimated Savings & Payback

10. Add the selected typology of saving by clicking on the correspondent button (Electrical, Thermal, Transport and Water). Enter the estimated annual energy savings in the MWh box; CO2 emissions and costs are automatic defined. Filling the field on the right it is also possible to add comments.
11. **Annual co-benefits –** insert estimated co-benefits. Filling the field on the right it is also possible to add comments and details about this estimation.
12. **Capital cost –** enter the cost to implement these savings
13. **Timeframe –** Select the expected timeframe factor (See Notes below and Appendix A)
14. **GHG Scope 1&2** – Select the greenhouse gas emission scope 1&2 factor (See Notes below and Appendix A for more details)
15. **Natural Resources** – Select the expected impact on natural resources(See Notes below and Appendix A for more details)
16. **Social Sustainability** - Select expected impact of this IO on social sustainability(See Notes below and Appendix A for more details)
17. **Submit –** by clicking on submit, Meeting information will be send to the people selected in the Meeting form
18. **Save –** by clicking on "Save" at any moment, the form will be saved with all the info contained; then, editor will be able to continue editing
19. **Cancel –** selecting this option all the unsaved information added will be lost

Note: Not all fields need to be filled in when creating a new improvement opportunity as sometimes not all the information is available to the creator.

The impact factors (13 to 16) are used, along with the "Total Savings" and the "Estimated Payback", for ranking the improvement opportunities to help energy managers to make decision on the priority of different energy saving actions. See Appendix A for full description of these impact factors and the priority ranking framework implemented in the Enerit software.

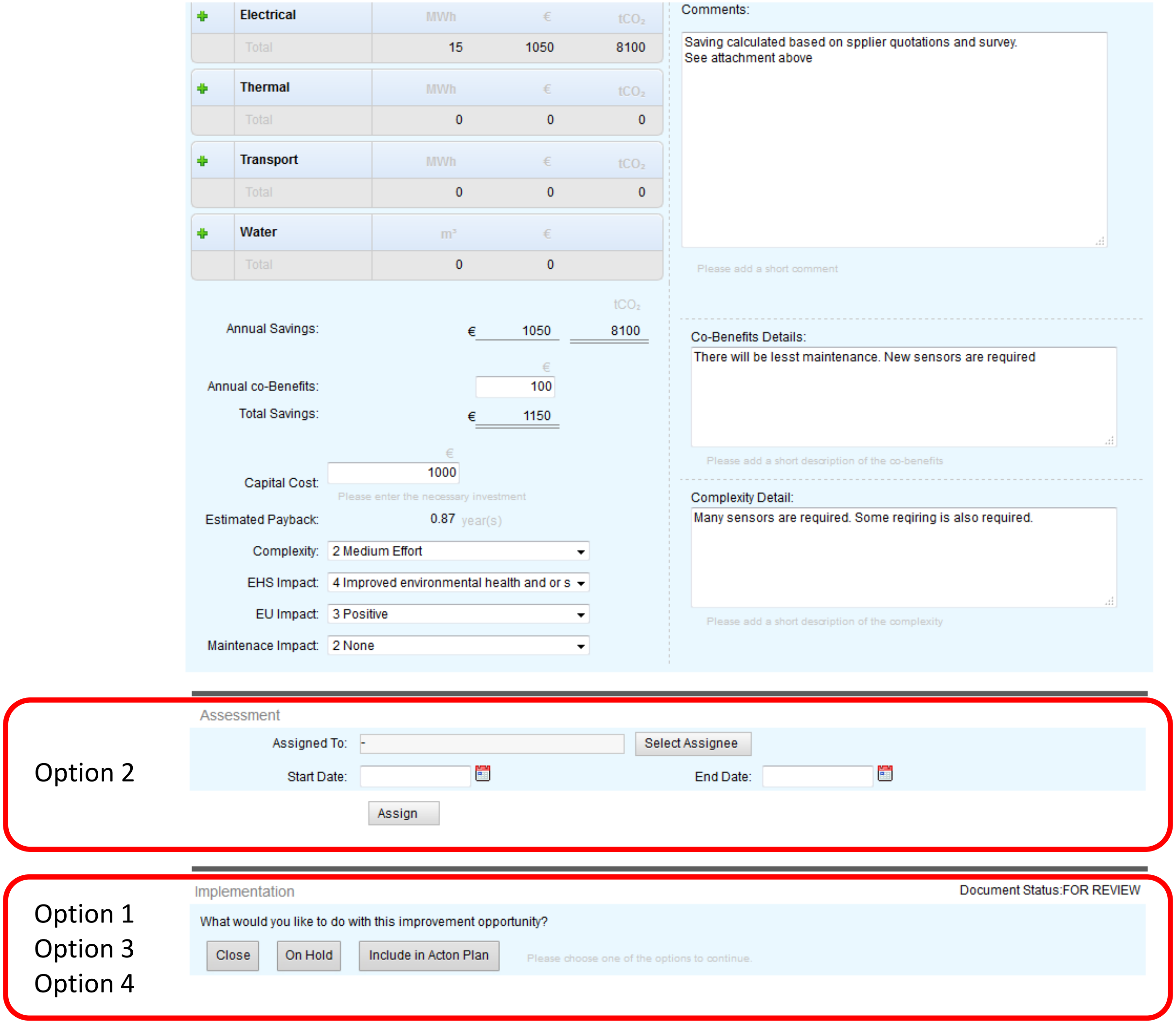
Note: Not all fields need to be filled in when creating a new improvement opportunity as sometimes not all the information is available to the creator. The "Human" or manually generated improvement opportunities are processed using the following workflow. When the user is finished entering the details they click on the submit button (17) and the IO moves to the “FOR REVIEW” step for review and decision by the energy manager.



The following sections guide the users on how the improvement opportunity is processed at the different steps in the above workflow. Improvement opportunities generated from the integrated FDD system have their own unique workflow describe section **Error! Reference source not found.**.

5.2.1 Reviewing an Improvement Opportunity

The Energy Manager will receive an automatic email when a new improvement opportunity is created. At this stage in the process, the Energy Manager still has the option to add new data or modify existing data and information about the opportunity.

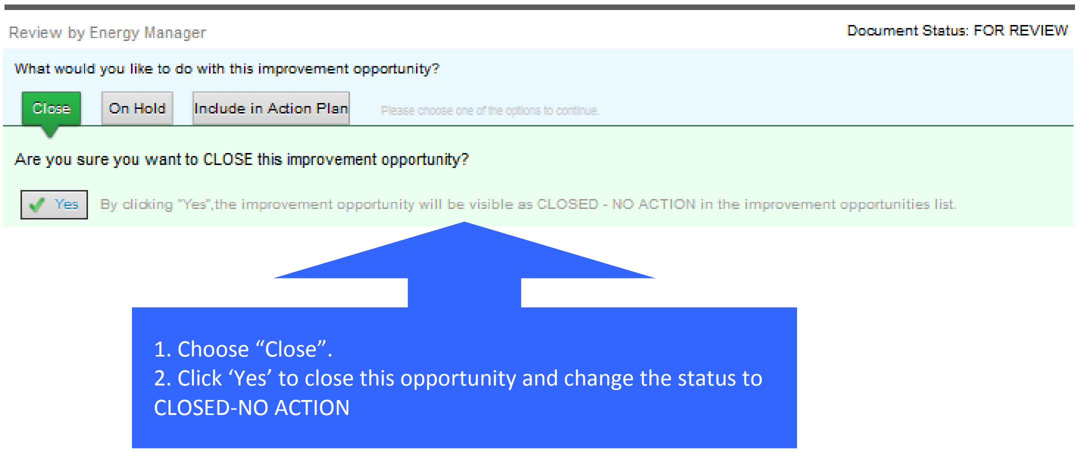


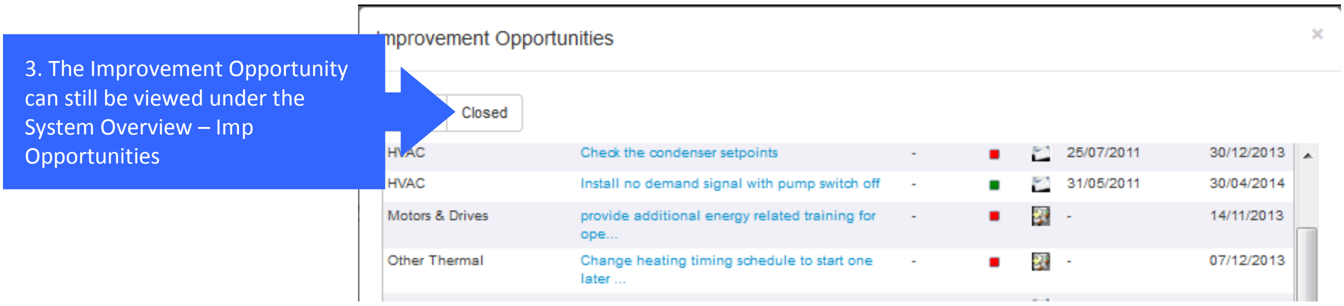
Using newly visible sections on the IO form the Energy Manager can decide from the following options:

- Close – No Action: if the IO is not relevant or not feasible
- On Hold: It is a viable option but will not be included in any plans yet
- Include in Action Plan: it should be included in the energy management action plan or assigned to someone. In case of assignment, the energy manager will define:
    - Who is in charge
    - Start date
    - End date

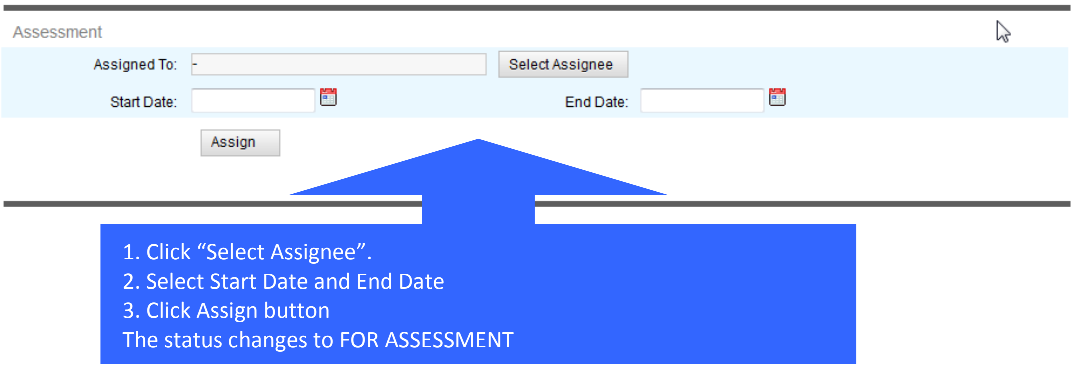
The following sections describe how the Energy Manager can implement these options.

- Option 1: **Close – No Action**

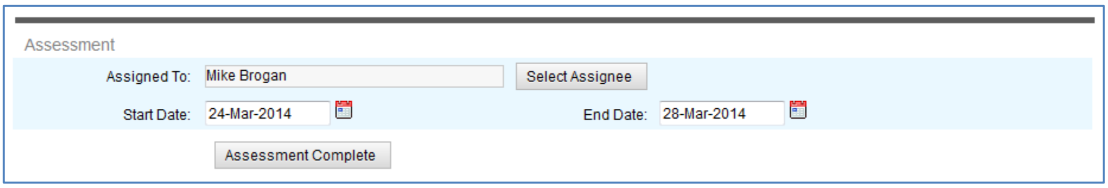




- Option 2: **Assessment**

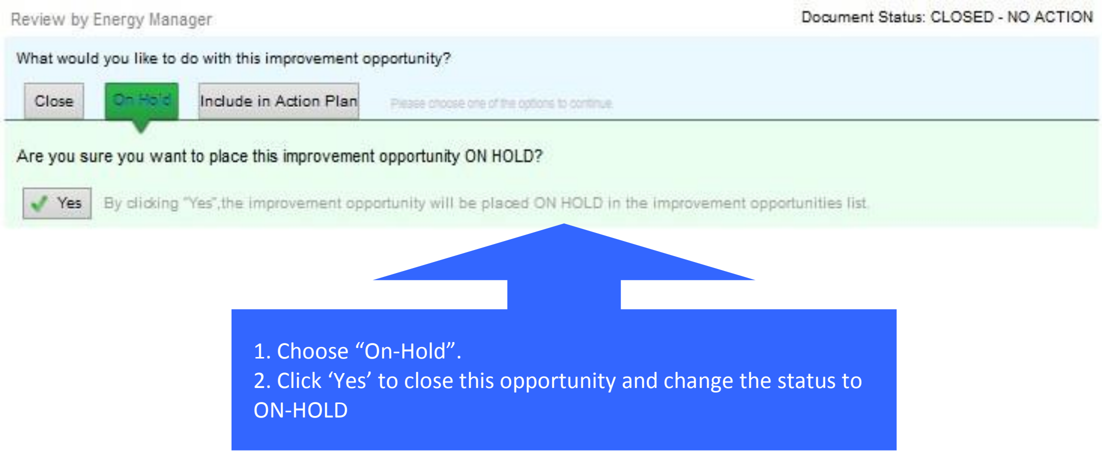


The "Assignee" selected to carry out the assessment will have the option to enter more details into the "Basic Information" and the "Estimated Energy Savings and Payback" sections of the improvement opportunity as described above

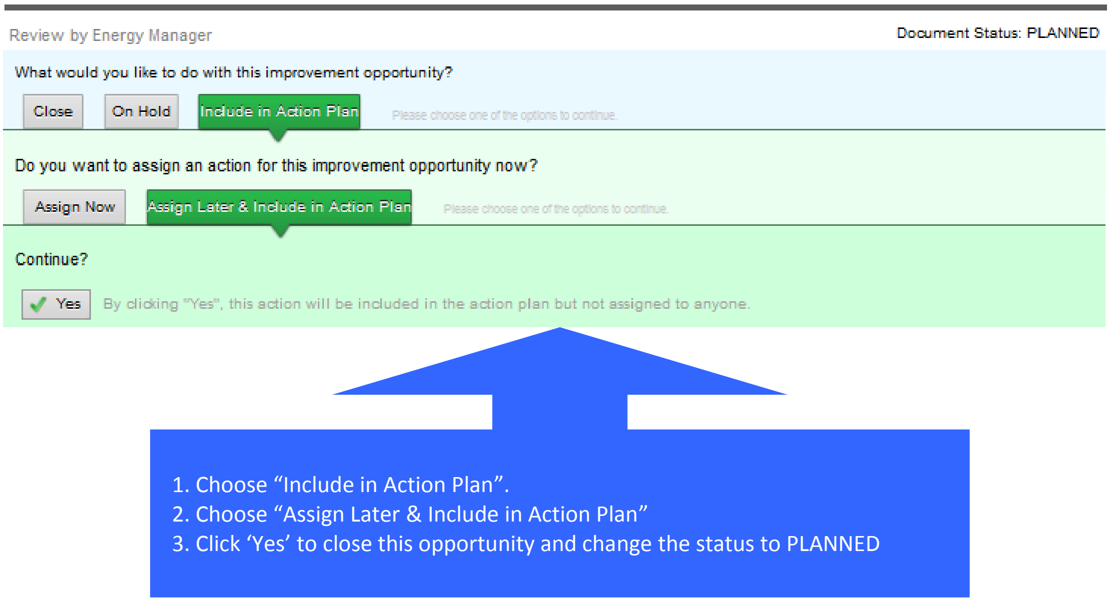


The Assignee clicks on the Assessment Complete button when they have completed the assessment has completed the assessment and the Energy Manager gets an email

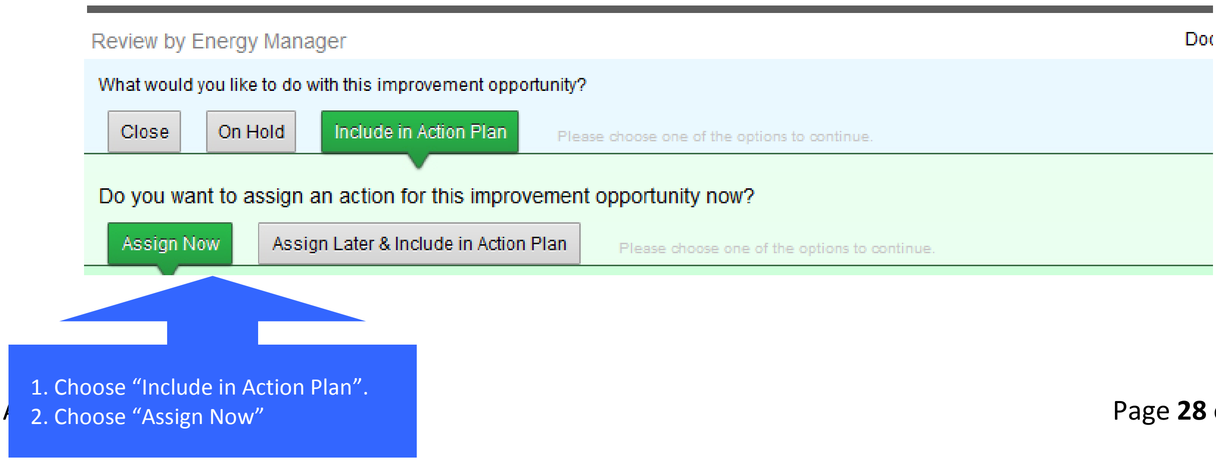
- Option 3: **On-Hold**

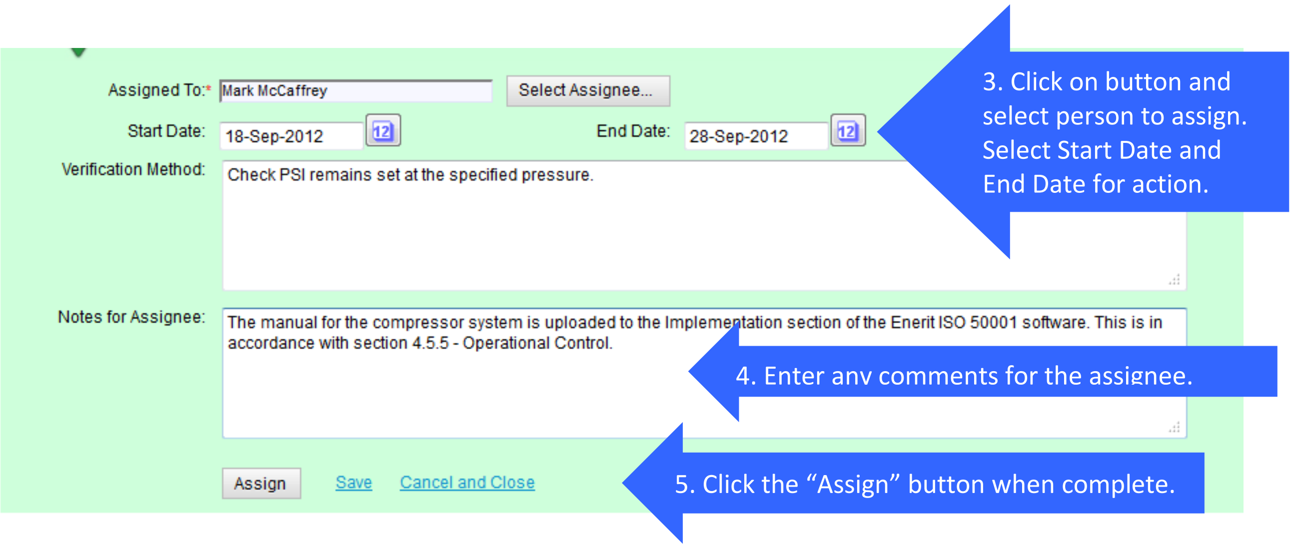


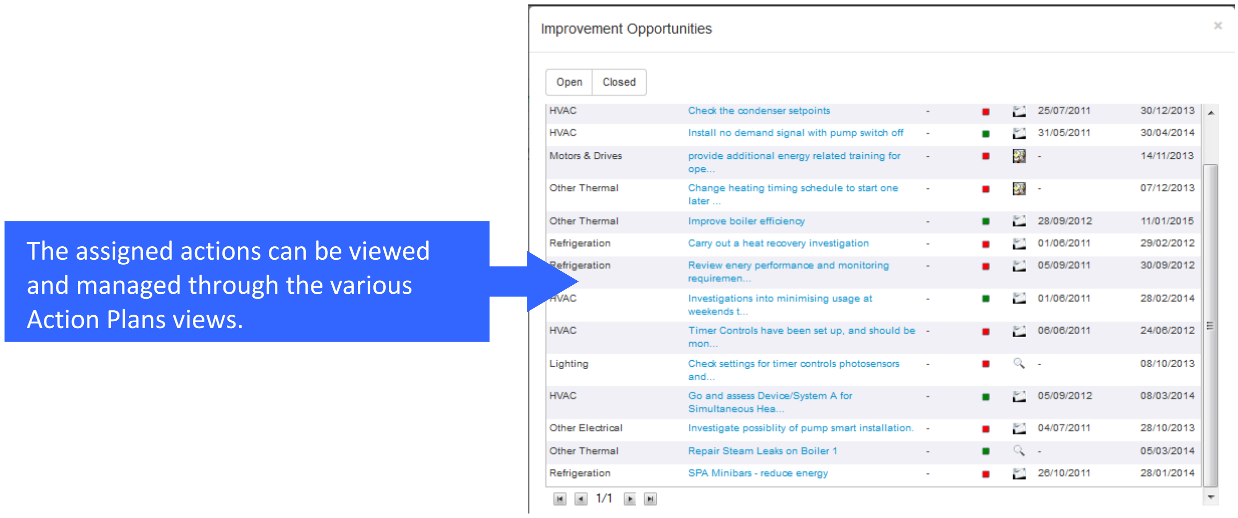
- Option 4: **Include in Action Plan** (but not ready to assign to a person yet)



- Option 4: **Include in Action Plan** (and assign to person)



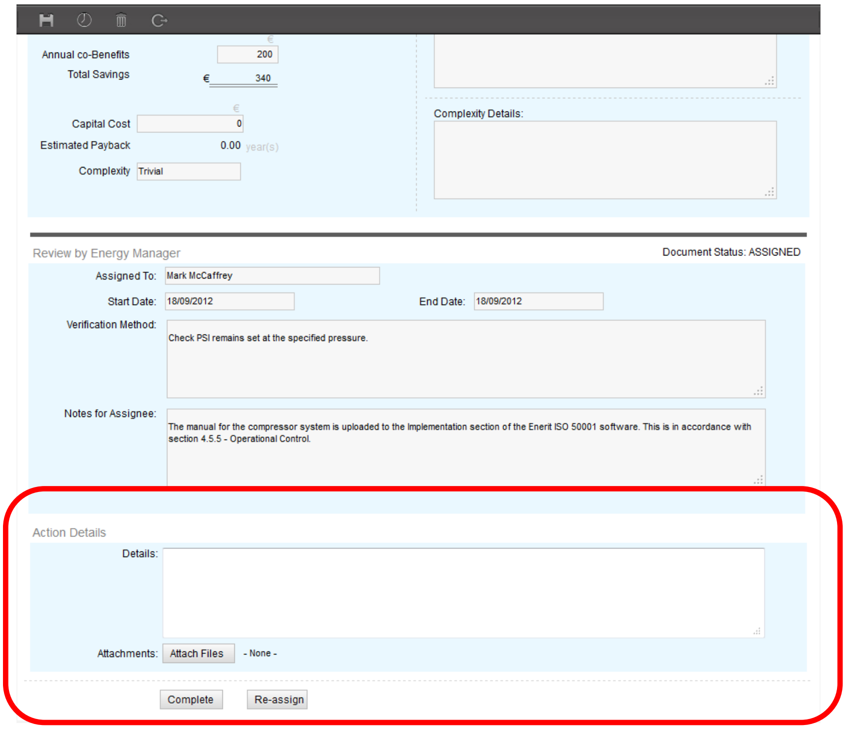




Note: For all of the options above, the Energy Manager can update existing data or input new data into the Basic Information and Estimated Savings and Payback sections before moving to the step.

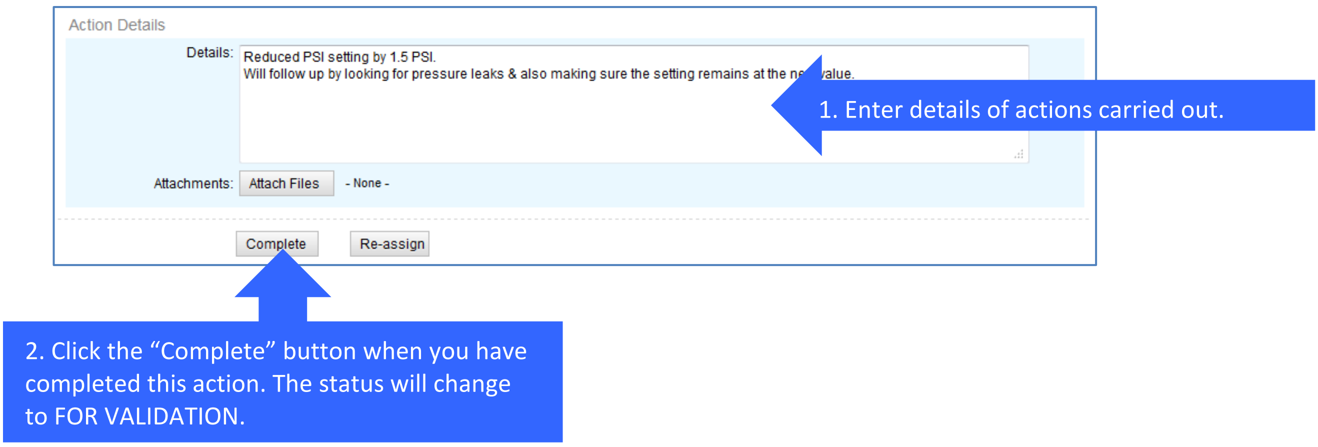
5.2.2 Responding to energy saving actions

- By assigned person – **Status = ASSIGNED**



When the Energy Manager assigns an action to a person, the assigned person receives an automatic email with a link to the action.

- A new **Action Details** section appears on the form for the assigned person with the following options.
  - **Details**: Enter the details of the actions carried out.
  - **Attachment** (button)**:** Attachments with more detail about the action carried out can be added by clicking on this button.
  - **Re-Assign** (button): This allows the assigned person to request that the Energy Manager reassign the action to another person. The assigned person will be asked to leave a comment why they wish to have the action reassigned.
  - **Reschedule** (button): This allows the assigned person to request more time to complete this action.
  - **Complete** (button): The assigned person clicks on this button when they have completed the action.

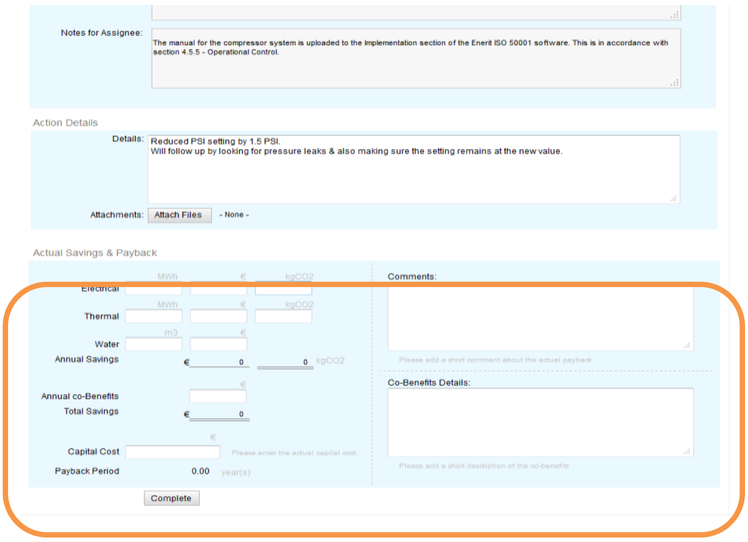


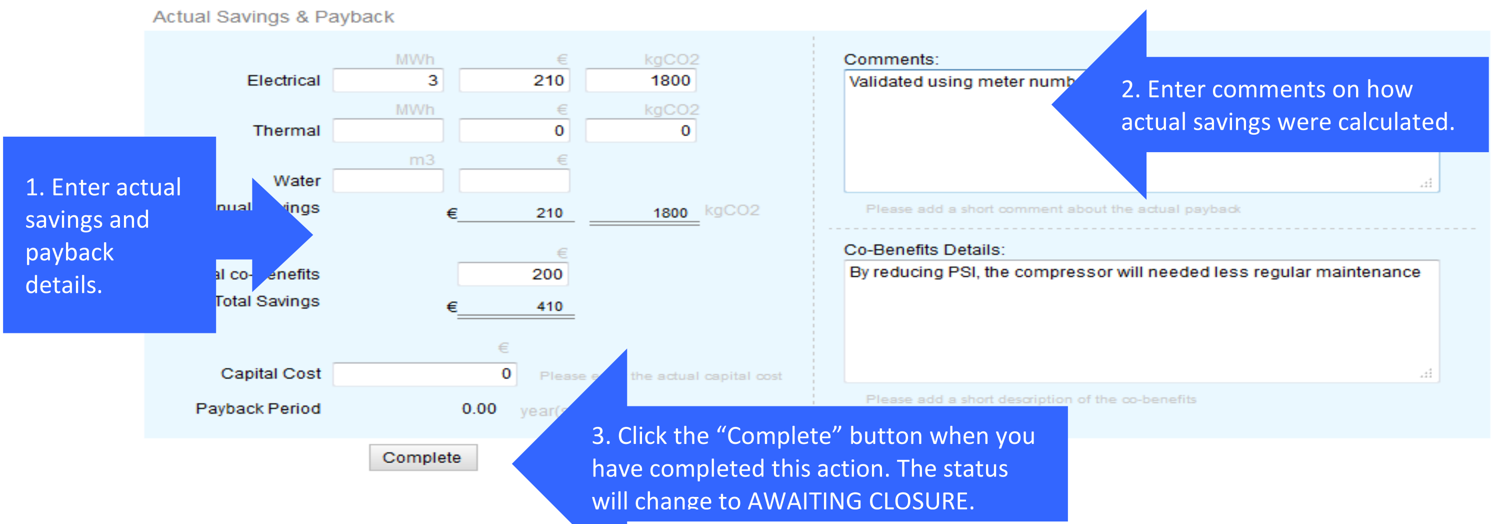
This above was the first of 2 stages in the action workflow process for the assigned person:

1. The assigned person details the actions carried out as described above.
2. The assigned person then enters the **Actual Savings & Payback** information as a result in carrying out this action as described in the next section.

- By assigned person – **Status = FOR VALIDATION**

When the assigned person has completed the action as described in the previous step, the action is moved to the FOR VALIDATION step where they have to complete the “Actual Savings & Payback” section.

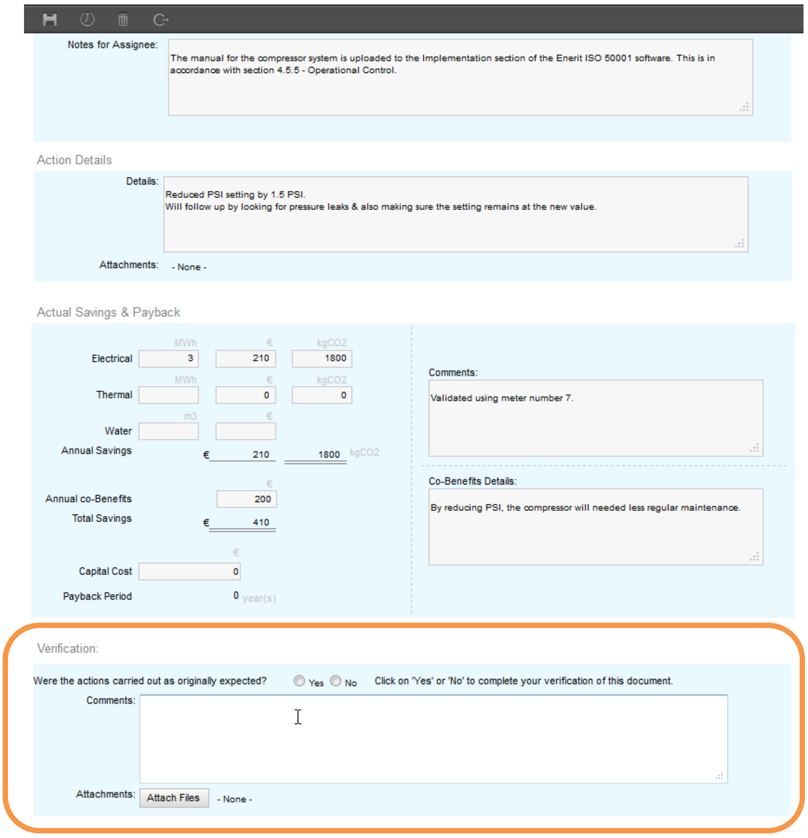




When the Assigned person has completed the “FOR VALIDATION” step, the Energy Manager is notified that this improvement opportunity has been completed and ready for final review and verification by the energy manager.

5.2.3 Approving an Energy Saving Action (Energy Manager)

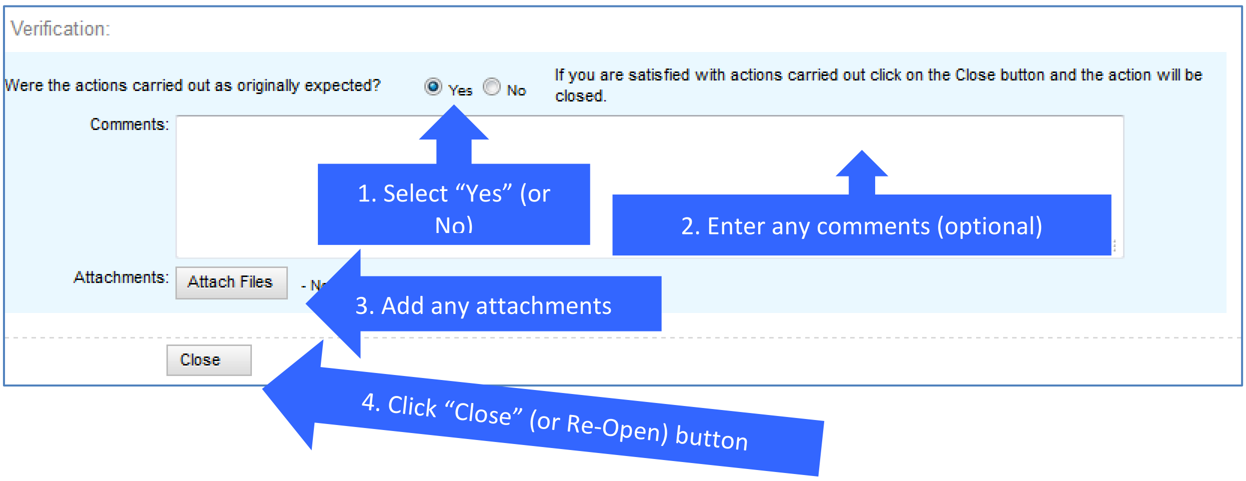
When the assigned person has completed the validation step then Energy Manager is automatically notified by email that the improvement opportunity has been completed and is now ready for final review verification by the energy manager.



The Energy Manager will receive an automatic email when the validation of the savings and payback step has been completed by the assigned person.

The workflow now allows the Energy Manager to decide one of the 2 following options:

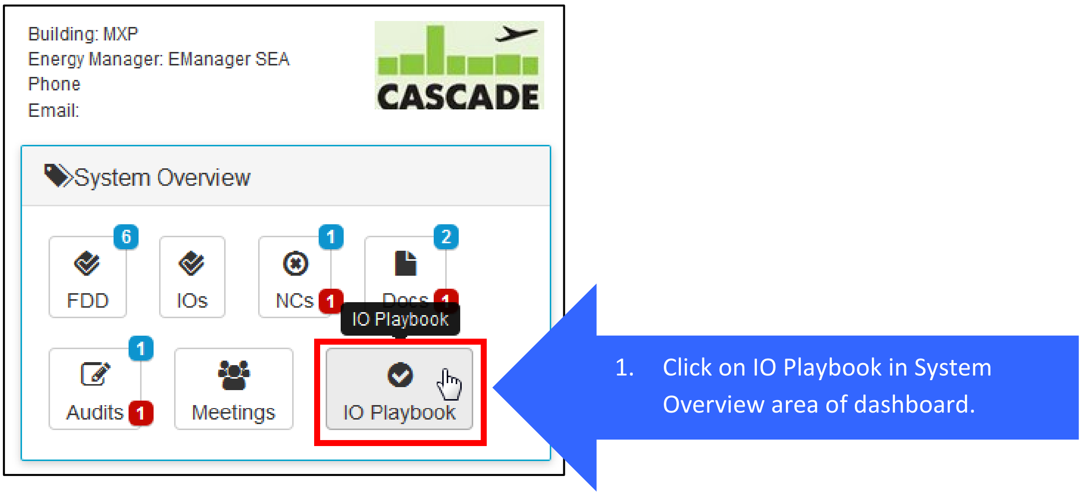
a) Close – The energy saving action has been completed as originally expected.
b) Re-Open – The energy manager requires further information or clarification on the actions carried out or the savings and payback calculations

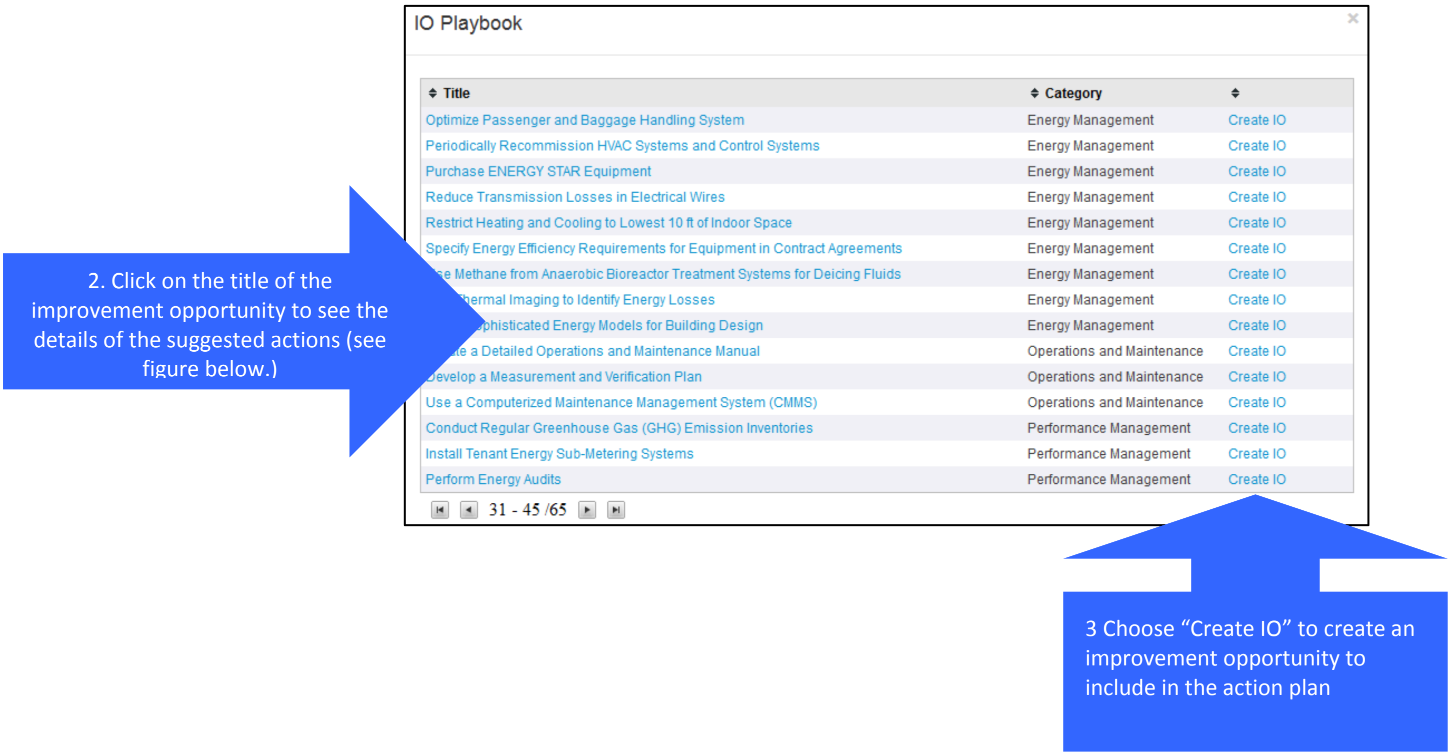


5.3 Improvement Opportunity Playbook

Another source of improvement opportunities is from pre-populated lists or IO Playbook. This IO Playbook allows the Energy Manager to review and create improvement opportunities from a default list of best practices that have been configured by your consultant or energy management team.

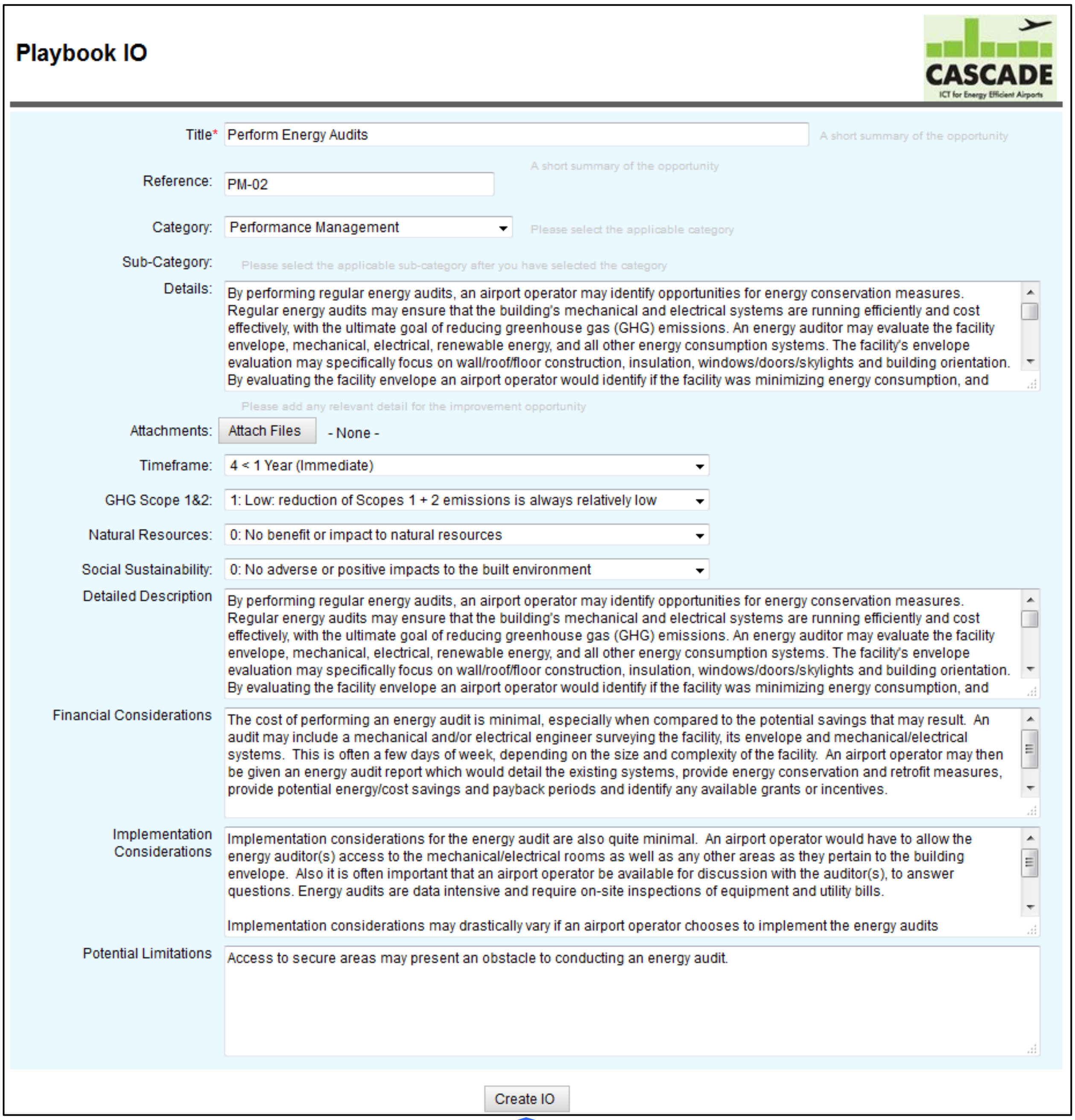
5.3.1 Creating an Improvement Opportunity from IO Playbook





Title	Category	
Optimize Passenger and Baggage Handling System	Energy Management	Create IO
Periodically Recommission HVAC Systems and Control Systems	Energy Management	Create IO
Purchase ENERGY STAR Equipment	Energy Management	Create IO
Reduce Transmission Losses in Electrical Wires	Energy Management	Create IO
Restrict Heating and Cooling to Lowest 10 ft of Indoor Space	Energy Management	Create IO
Specify Energy Efficiency Requirements for Equipment in Contract Agreements	Energy Management	Create IO
...e Methane from Anaerobic Bioreactor Treatment Systems for Deicing Fluids	Energy Management	Create IO
...hermal Imaging to Identify Energy Losses	Energy Management	Create IO
...phisticated Energy Models for Building Design	Energy Management	Create IO
...e a Detailed Operations and Maintenance Manual	Operations and Maintenance	Create IO
...evelop a Measurement and Verification Plan	Operations and Maintenance	Create IO
Use a Computerized Maintenance Management System (CMMS)	Operations and Maintenance	Create IO
Conduct Regular Greenhouse Gas (GHG) Emission Inventories	Performance Management	Create IO
Install Tenant Energy Sub-Metering Systems	Performance Management	Create IO
Perform Energy Audits	Performance Management	Create IO

The Playbook IO input form (figure below) allows you to details the following parameters; *Timeframe*, *GHG Scope 1&2*, *Natural Resources*, *Social Sustainability* and also include information on *Financial Considerations*, *Implementation Considerations* and *Potential Limitations* for each suggested improvement opportunity. More detailed descriptions and instructions on the creation and configuration of "Playbook IO" items are described in the Administration chapter later.


Playbook IO

Title* Perform Energy Audits — A short summary of the opportunity

Reference: PM-02 — A short summary of the opportunity

Category: Performance Management — Please select the applicable category

Sub-Category: Please select the applicable sub-category after you have selected the category

Details: By performing regular energy audits, an airport operator may identify opportunities for energy conservation measures. Regular energy audits may ensure that the building's mechanical and electrical systems are running efficiently and cost effectively, with the ultimate goal of reducing greenhouse gas (GHG) emissions. An energy auditor may evaluate the facility envelope, mechanical, electrical, renewable energy, and all other energy consumption systems. The facility's envelope evaluation may specifically focus on wall/roof/floor construction, insulation, windows/doors/skylights and building orientation. By evaluating the facility envelope an airport operator would identify if the facility was minimizing energy consumption, and

Please add any relevant detail for the improvement opportunity

Attachments: Attach Files - None -

Timeframe: 4 < 1 Year (Immediate)

GHG Scope 1&2: 1: Low: reduction of Scopes 1 + 2 emissions is always relatively low

Natural Resources: 0: No benefit or impact to natural resources

Social Sustainability: 0: No adverse or positive impacts to the built environment

Detailed Description: By performing regular energy audits, an airport operator may identify opportunities for energy conservation measures. Regular energy audits may ensure that the building's mechanical and electrical systems are running efficiently and cost effectively, with the ultimate goal of reducing greenhouse gas (GHG) emissions. An energy auditor may evaluate the facility envelope, mechanical, electrical, renewable energy, and all other energy consumption systems. The facility's envelope evaluation may specifically focus on wall/roof/floor construction, insulation, windows/doors/skylights and building orientation. By evaluating the facility envelope an airport operator would identify if the facility was minimizing energy consumption, and

Financial Considerations: The cost of performing an energy audit is minimal, especially when compared to the potential savings that may result. An audit may include a mechanical and/or electrical engineer surveying the facility, its envelope and mechanical/electrical systems. This is often a few days of week, depending on the size and complexity of the facility. An airport operator may then be given an energy audit report which would detail the existing systems, provide energy conservation and retrofit measures, provide potential energy/cost savings and payback periods and identify any available grants or incentives.

Implementation Considerations: Implementation considerations for the energy audit are also quite minimal. An airport operator would have to allow the energy auditor(s) access to the mechanical/electrical rooms as well as any other areas as they pertain to the building envelope. Also it is often important that an airport operator be available for discussion with the auditor(s), to answer questions. Energy audits are data intensive and require on-site inspections of equipment and utility bills.

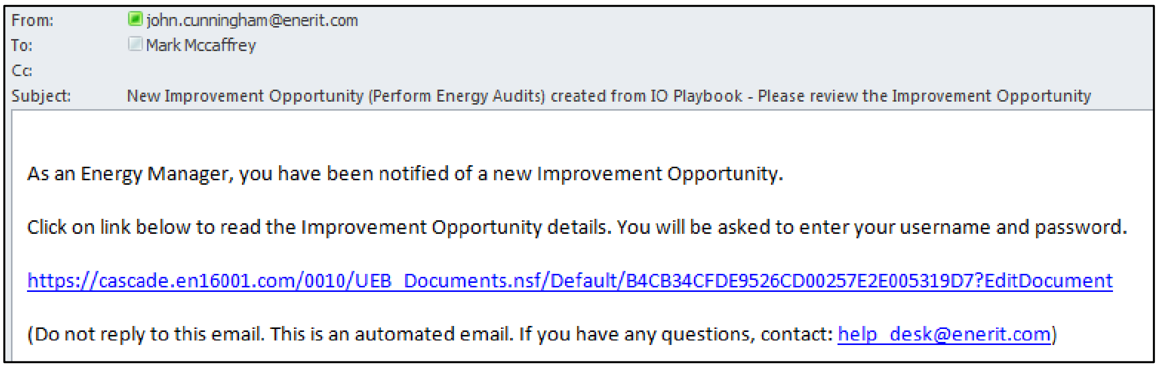
Implementation considerations may drastically vary if an airport operator chooses to implement the energy audits

Potential Limitations: Access to secure areas may present an obstacle to conducting an energy audit.

Create IO

3 Choose "Create IO" to create an improvement opportunity to include in the action plan.

When the "Create IO" button is clicked a new Improvement Opportunity is created in the Improvement Opportunities module and the Energy Manager receives an automated email similar to example in the following figure.



From: john.cunningham@enerit.com
To: Mark Mccaffrey
Cc:
Subject: New Improvement Opportunity (Perform Energy Audits) created from IO Playbook - Please review the Improvement Opportunity

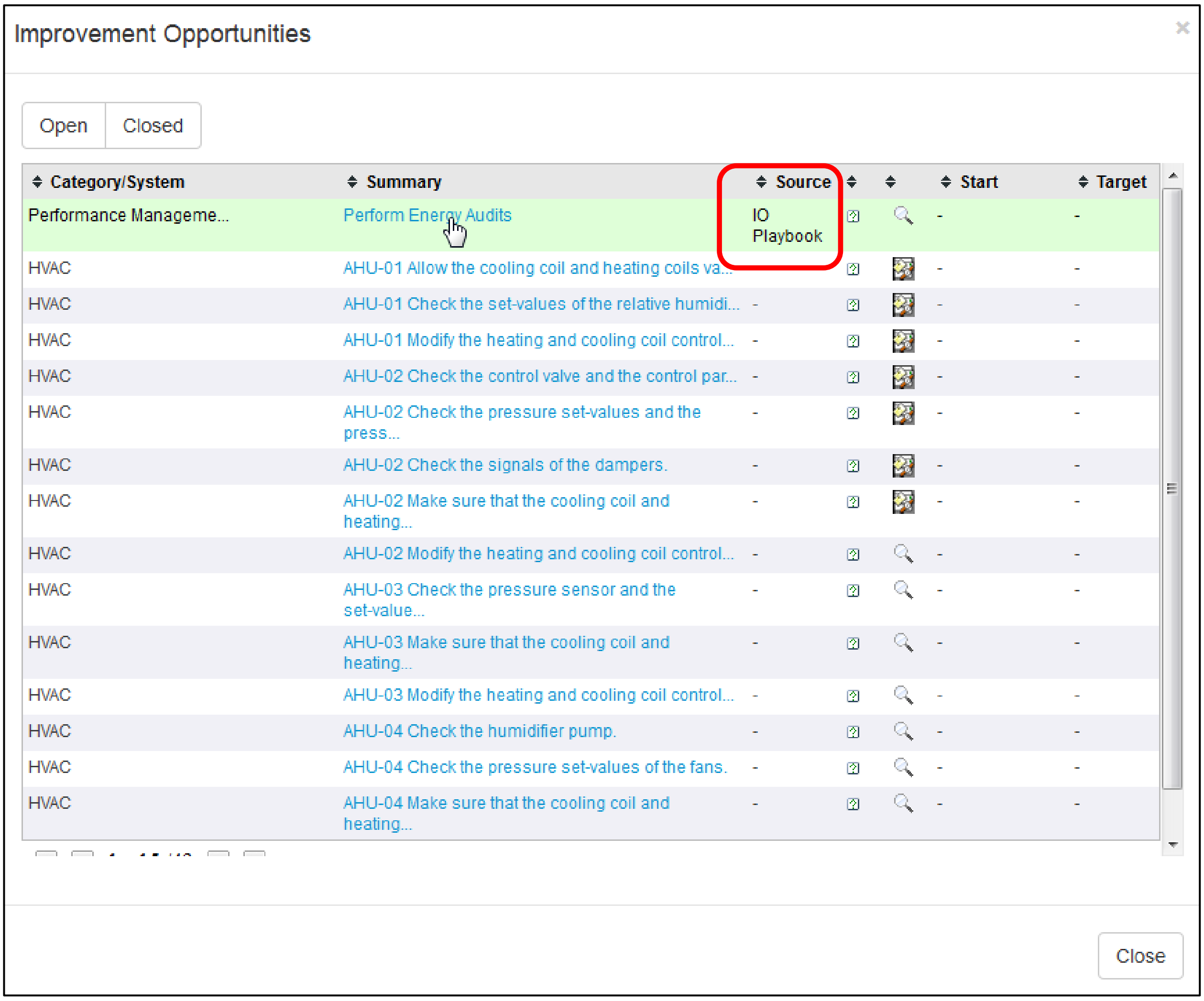
As an Energy Manager, you have been notified of a new Improvement Opportunity.

Click on link below to read the Improvement Opportunity details. You will be asked to enter your username and password.

https://cascade.en16001.com/0010/UEB_Documents.nsf/Default/B4CB34CFDE9526CD00257E2E005319D7?EditDocument

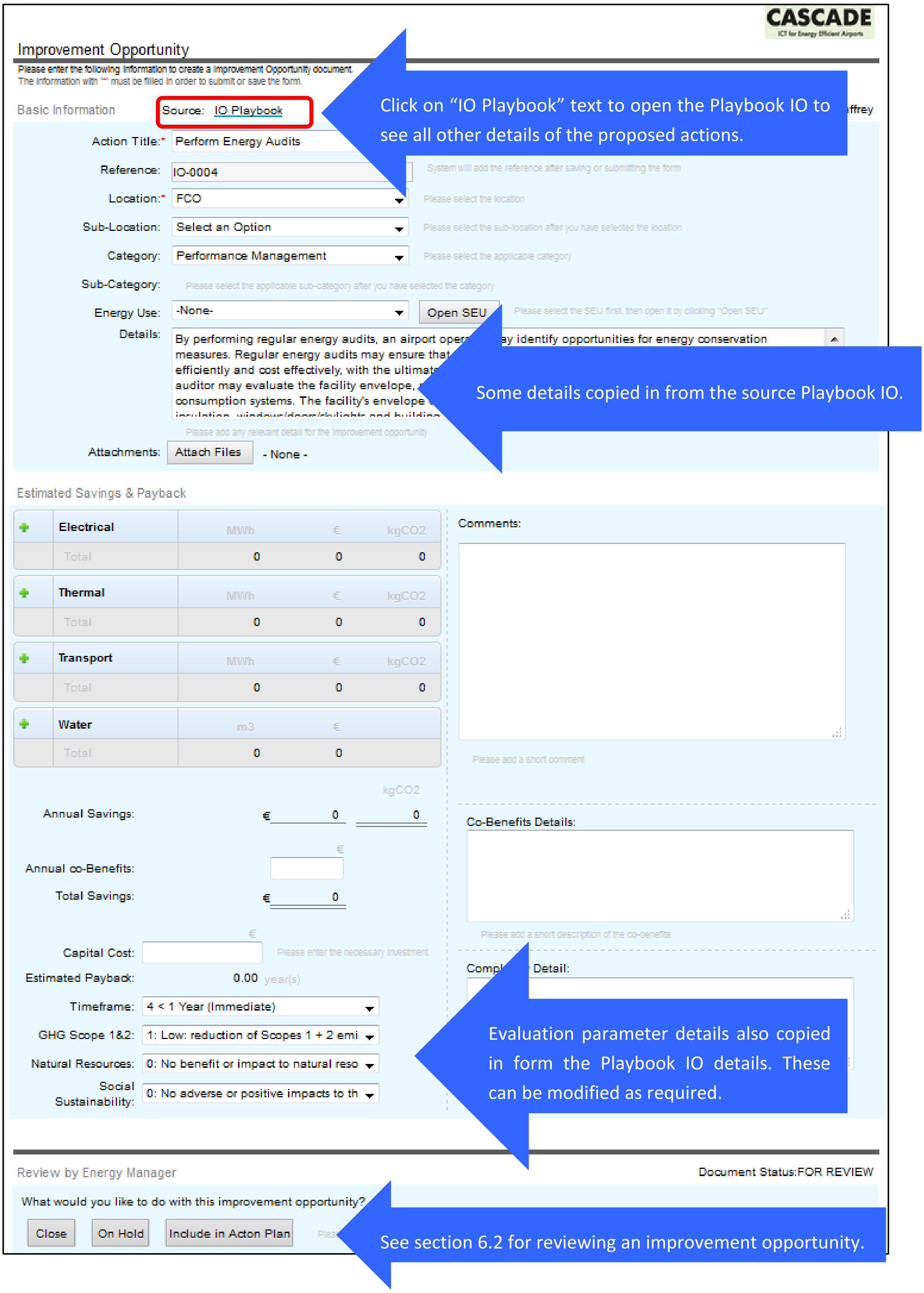
(Do not reply to this email. This is an automated email. If you have any questions, contact: help_desk@enerit.com)

The improvement opportunity can be viewed by clicking on the link in the example email above or by clicking on the link in the Improvement Opportunity view from the “IOs” icon in the System Overview area of the Dashboard.



Category/System	Summary	Source			Start	Target
Performance Manageme...	Perform Energy Audits	IO Playbook			-	-
HVAC	AHU-01 Allow the cooling coil and heating coils va...				-	-
HVAC	AHU-01 Check the set-values of the relative humidi...	-			-	-
HVAC	AHU-01 Modify the heating and cooling coil control...	-			-	-
HVAC	AHU-02 Check the control valve and the control par...	-			-	-
HVAC	AHU-02 Check the pressure set-values and the press...	-			-	-
HVAC	AHU-02 Check the signals of the dampers.	-			-	-
HVAC	AHU-02 Make sure that the cooling coil and heating...	-			-	-
HVAC	AHU-02 Modify the heating and cooling coil control...	-			-	-
HVAC	AHU-03 Check the pressure sensor and the set-value...	-			-	-
HVAC	AHU-03 Make sure that the cooling coil and heating...	-			-	-
HVAC	AHU-03 Modify the heating and cooling coil control...	-			-	-
HVAC	AHU-04 Check the humidifier pump.	-			-	-
HVAC	AHU-04 Check the pressure set-values of the fans.	-			-	-
HVAC	AHU-04 Make sure that the cooling coil and heating...	-			-	-

The source of the improvement opportunity is “IO Playbook” and can be found by sorting the source column. Click on the title to open and begin reviewing this new improvement opportunity.



5.3.2 Processing an Playbook improvement opportunity

See section 5.2.1 to 5.2.3 for instructions on processing a new improvement opportunity.

5.4 Improvement Opportunity Ranking

In order to help the energy management team make decision on what improvement opportunities to include in the energy management action plans, an Action Management Prioritization Framework has been developed in the software. A detailed description of this framework is included in Appendix A.

The ranking establishes 6 evaluation parameters for any Improvement Opportunity, being these:

A. Total Estimated Savings [TS]

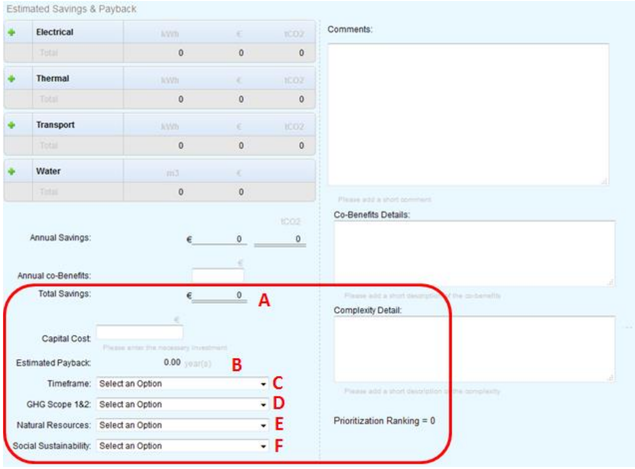
B. Payback Period [PB]

C. Timeframe [TF]

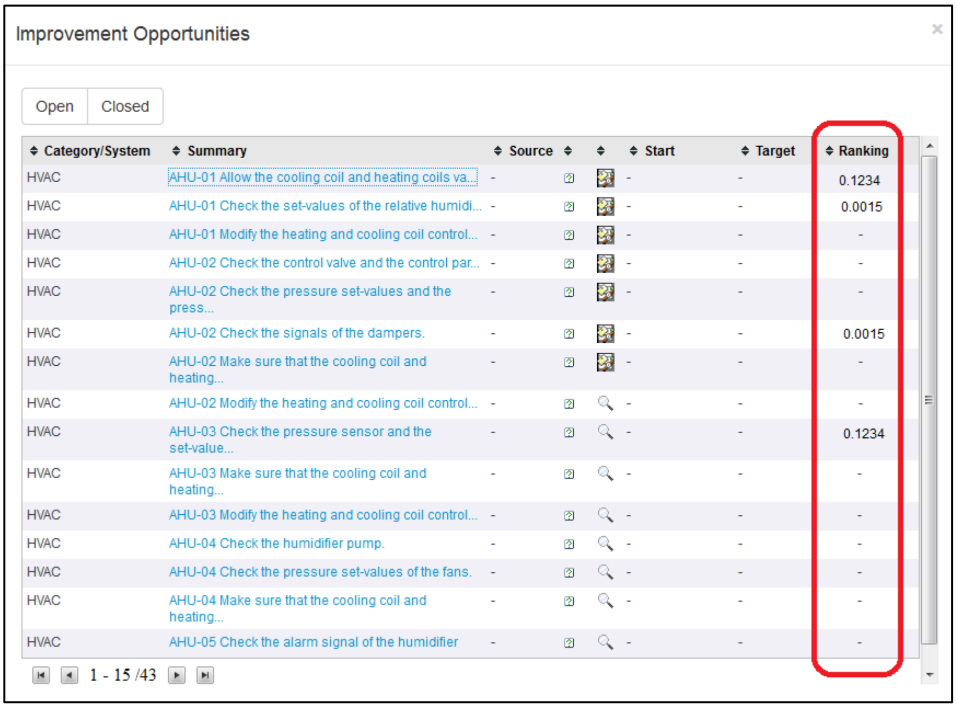
D. GHG Scopes 1&2 emissions reduction [GHG]

E. Impact on Natural Resources [NR]

F. Impact on Social Sustainability [SS]



The Energy management team can view the ranking in the Improvement Opportunity view which can be accessed from the IO icon in the System Overview are of the dashboard.


Improvement Opportunities

Open | Closed

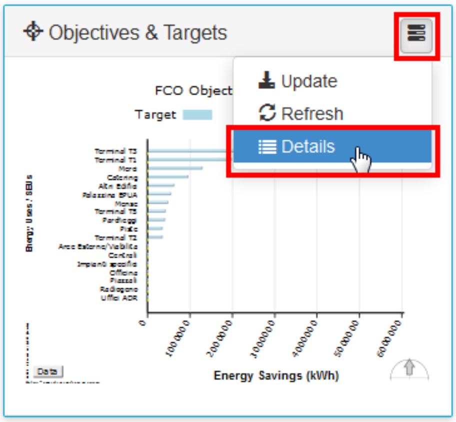
Category/System	Summary	Source			Start	Target	Ranking
HVAC	AHU-01 Allow the cooling coil and heating coils va...	-			-	-	0.1234
HVAC	AHU-01 Check the set-values of the relative humidi...	-			-	-	0.0015
HVAC	AHU-01 Modify the heating and cooling coil control...	-			-	-	-
HVAC	AHU-02 Check the control valve and the control par...	-			-	-	-
HVAC	AHU-02 Check the pressure set-values and the press...	-			-	-	-
HVAC	AHU-02 Check the signals of the dampers.	-			-	-	0.0015
HVAC	AHU-02 Make sure that the cooling coil and heating...	-			-	-	-
HVAC	AHU-02 Modify the heating and cooling coil control...	-			-	-	-
HVAC	AHU-03 Check the pressure sensor and the set-value...	-			-	-	0.1234
HVAC	AHU-03 Make sure that the cooling coil and heating...	-			-	-	-
HVAC	AHU-03 Modify the heating and cooling coil control...	-			-	-	-
HVAC	AHU-04 Check the humidifier pump.	-			-	-	-
HVAC	AHU-04 Check the pressure set-values of the fans.	-			-	-	-
HVAC	AHU-04 Make sure that the cooling coil and heating...	-			-	-	-
HVAC	AHU-05 Check the alarm signal of the humidifier	-			-	-	-

1 - 15 /43

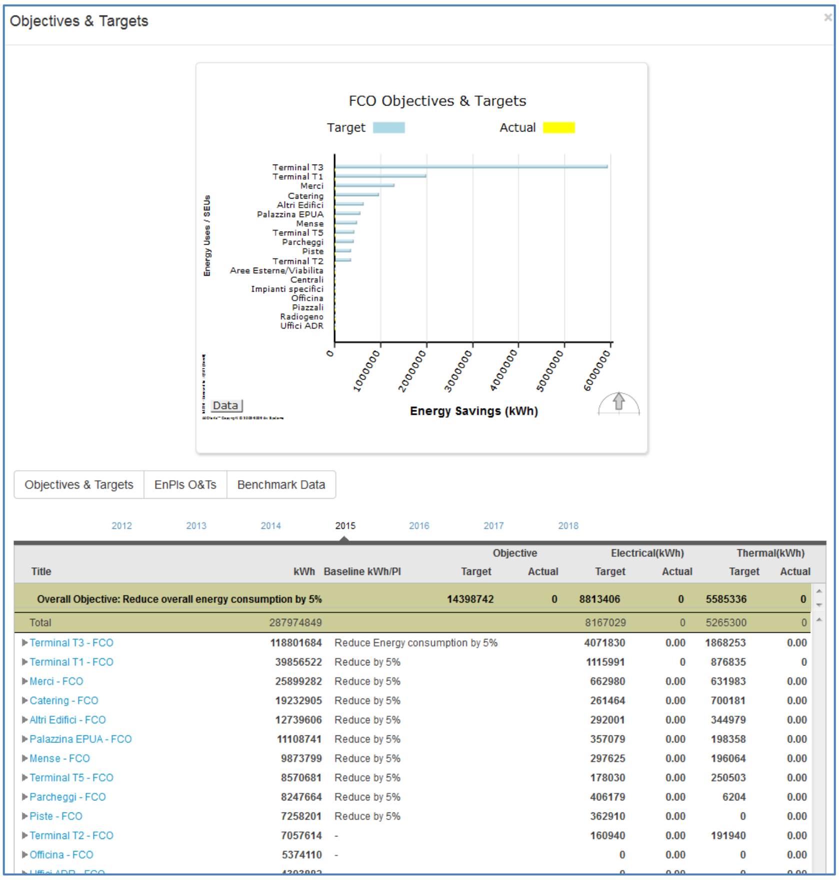
6 Objectives & Targets

6.1 Overview

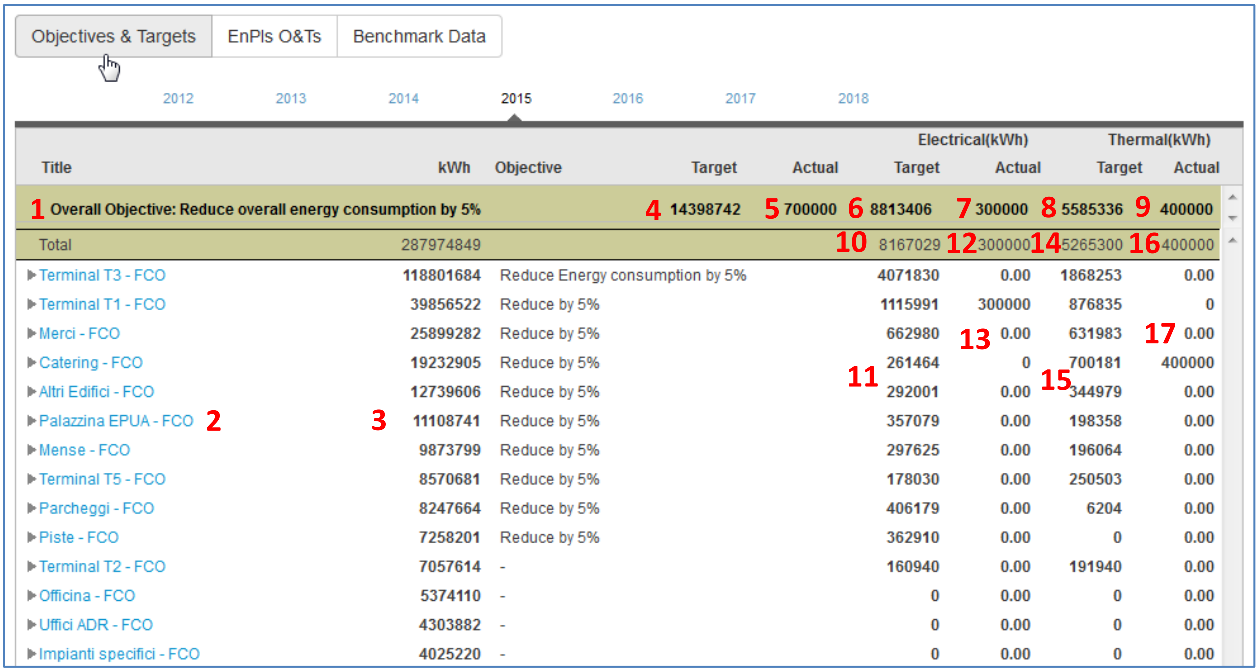
This section allows the organization to define and track energy saving objectives and targets. To view the objectives and targets go to the Objectives and Targets area on the dashboard.



To see a detailed view of the objectives and targets, click on the icon in the right hand corner and click in "Details (see figure above). The following screen appears.



Title	kWh	Baseline kWh/PI	Objective Target	Objective Actual	Electrical(kWh) Target	Electrical(kWh) Actual	Thermal(kWh) Target	Thermal(kWh) Actual
Overall Objective: Reduce overall energy consumption by 5%			**14398742**	**0**	**8813406**	**0**	**5585336**	**0**
Total	287974849				8167029	0	5265300	0
Terminal T3 - FCO	118801684	Reduce Energy consumption by 5%			4071830	0.00	1868253	0.00
Terminal T1 - FCO	39856522	Reduce by 5%			1115991	0	876835	0
Merci - FCO	25899282	Reduce by 5%			662980	0.00	631983	0.00
Catering - FCO	19232905	Reduce by 5%			261464	0.00	700181	0.00
Altri Edifici - FCO	12739606	Reduce by 5%			292001	0.00	344979	0.00
Palazzina EPUA - FCO	11108741	Reduce by 5%			357079	0.00	198358	0.00
Mense - FCO	9873799	Reduce by 5%			297625	0.00	196064	0.00
Terminal T5 - FCO	8570681	Reduce by 5%			178030	0.00	250503	0.00
Parcheggi - FCO	8247664	Reduce by 5%			406179	0.00	6204	0.00
Piste - FCO	7258201	Reduce by 5%			362910	0.00	0	0.00
Terminal T2 - FCO	7057614	-			160940	0.00	191940	0.00
Officina - FCO	5374110	-			0	0.00	0	0.00



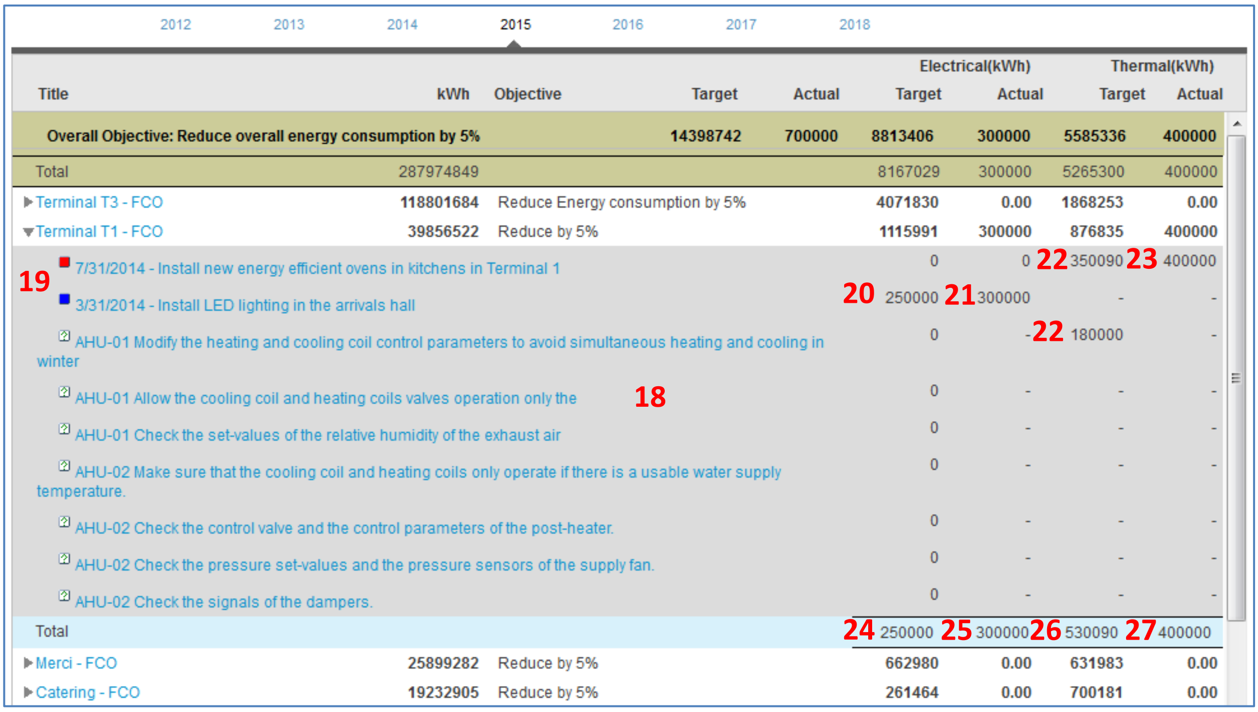
Title	kWh	Objective	Target	Actual	Electrical(kWh) Target	Electrical(kWh) Actual	Thermal(kWh) Target	Thermal(kWh) Actual
1 Overall Objective: Reduce overall energy consumption by 5%			4 14398742	5 700000	6 8813406	7 300000	8 5585336	9 400000
Total	287974849				10 8167029	12 300000	14 5265300	16 400000
▶Terminal T3 - FCO	118801684	Reduce Energy consumption by 5%			4071830	0.00	1868253	0.00
▶Terminal T1 - FCO	39856522	Reduce by 5%			1115991	300000	876835	0
▶Merci - FCO	25899282	Reduce by 5%			662980	13 0.00	631983	17 0.00
▶Catering - FCO	19232905	Reduce by 5%			261464	0	700181	400000
▶Altri Edifici - FCO	12739606	Reduce by 5%			11 292001	0.00	15 344979	0.00
▶Palazzina EPUA - FCO 2	3 11108741	Reduce by 5%			357079	0.00	198358	0.00
▶Mense - FCO	9873799	Reduce by 5%			297625	0.00	196064	0.00
▶Terminal T5 - FCO	8570681	Reduce by 5%			178030	0.00	250503	0.00
▶Parcheggi - FCO	8247664	Reduce by 5%			406179	0.00	6204	0.00
▶Piste - FCO	7258201	Reduce by 5%			362910	0.00	0	0.00
▶Terminal T2 - FCO	7057614	-			160940	0.00	191940	0.00
▶Officina - FCO	5374110	-			0	0.00	0	0.00
▶Uffici ADR - FCO	4303882	-			0	0.00	0	0.00
▶Impianti specifici - FCO	4025220	-			0	0.00	0	0.00

Columns of the table represent:

1. **Overall Objective:** This is a statement of overall objective for energy savings for the year. This is configured in the "Location" document in the Admin area (See Administration help) for the current location.
2. **Title:** The first column shows the title of the Energy Uses. The location is also indicated in this column. This allows for data from multiple locations to be easily analyzed particularly when energy uses might have the same name in different locations (e.g. Lighting, Heating.)
3. **(kWh):** The second column shows the annual energy usage of energy use (This shows the default units configured for the system, e.g. kWh, MWh, etc.)
4. **Target:** This is the total target savings for this location based on the total of the overall Electrical – Target (see item 6) and the overall Thermal – Target savings (see item 8.)
5. **Actual:** This is total actual savings based on the total Electrical – Actual savings (see item 7) and Thermal – Actual savings (see item 9.)
6. **Electrical - Target** (bold text): This is the Electrical Target savings defined for the year for this location. The Electrical Target is defined in the Location document (see later sections).
7. **Electrical – Actual** (bold text): This is the total actual savings achieved for each energy use from the associated improvement opportunities. This is the summation of the energy savings for each energy use in the column below (see item 13)
8. **Thermal - Target** (bold text): This is the Thermal Target savings defined for the year for this location. The Thermal Target is defined in the Location document (see next sections).
9. **Thermal – Actual** (bold text): This is the total actual thermal savings achieved for each energy use from the associated improvement opportunities. This is the summation of the energy savings for each energy use in the column below (see item 17)
10. **Total target electrical savings for all Energy Uses:** This number is the total of electrical savings targets from all of the energy uses in the column below (**11**).
11. Electrical savings targets for each energy use.
12. **Actual electrical savings achieved so far for all energy use:** This number is the total of actual electrical savings from all of the energy uses in the column below (**13**).

13. Actual electrical savings for each energy use. The actual electrical savings is calculated from the actual savings from each of the completed improvement opportunities associated with that energy use (see next section for more detail.)
14. **Total target thermal savings for all Energy Uses:** This number is the total of thermal savings targets for all of the energy uses as shown in the column below (**15**).
15. Thermal savings targets for each energy use.
16. **Actual thermal savings achieved so far from all energy use:** This number is the total of actual thermal savings from all of the energy uses in the column below (**17**).
17. Actual thermal savings for each energy use. The actual thermal savings is calculated from the actual savings from each of the completed improvement opportunities associated with that energy use (see next section for more detail.)

By clicking on the triangular icon beside the energy use, the actions related to that item will be displayed as follows:



2012 2013 2014 2015 2016 2017 2018

Title	kWh	Objective	Target	Actual	Electrical(kWh) Target	Electrical(kWh) Actual	Thermal(kWh) Target	Thermal(kWh) Actual
Overall Objective: Reduce overall energy consumption by 5%			14398742	700000	8813406	300000	5585336	400000
Total	287974849				8167029	300000	5265300	400000
▶Terminal T3 - FCO	118801684	Reduce Energy consumption by 5%			4071830	0.00	1868253	0.00
▼Terminal T1 - FCO	39856522	Reduce by 5%			1115991	300000	876835	400000
19 7/31/2014 - Install new energy efficient ovens in kitchens in Terminal 1					0	0	22 350090	23 400000
3/31/2014 - Install LED lighting in the arrivals hall					20 250000	21 300000	-	-
AHU-01 Modify the heating and cooling coil control parameters to avoid simultaneous heating and cooling in winter					0	-	22 180000	-
AHU-01 Allow the cooling coil and heating coils valves operation only the 18					0	-	-	-
AHU-01 Check the set-values of the relative humidity of the exhaust air					0	-	-	-
AHU-02 Make sure that the cooling coil and heating coils only operate if there is a usable water supply temperature.					0	-	-	-
AHU-02 Check the control valve and the control parameters of the post-heater.					0	-	-	-
AHU-02 Check the pressure set-values and the pressure sensors of the supply fan.					0	-	-	-
AHU-02 Check the signals of the dampers.					0	-	-	-
Total					24 250000	25 300000	26 530090	27 400000
▶Merci - FCO	25899282	Reduce by 5%			662980	0.00	631983	0.00
▶Catering - FCO	19232905	Reduce by 5%			261464	0.00	700181	0.00

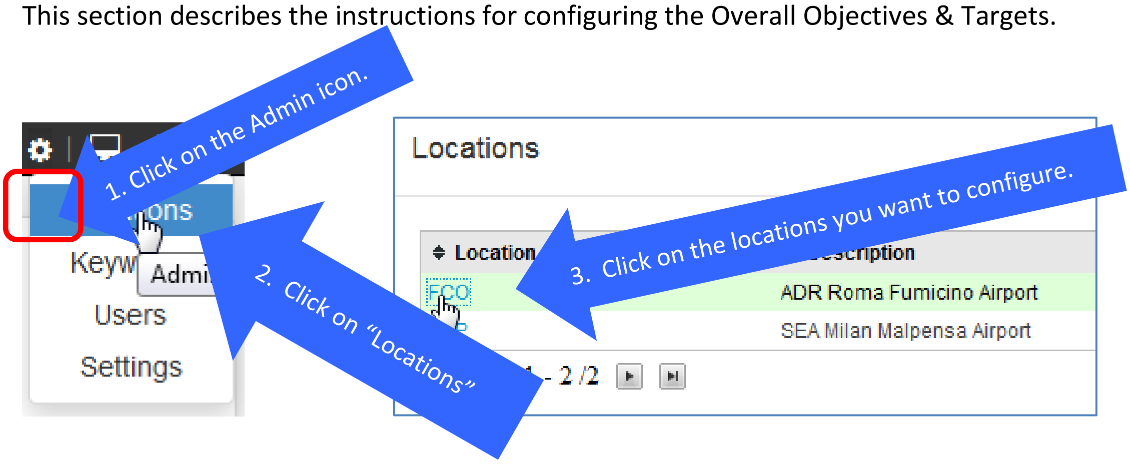
The additional information displayed relating is as follows:

18. List of improvement opportunities associated with the selected energy use. Only improvement opportunities that have been review and with a status of PLANNED, ASSIGNED, WAITING, FOR VALIDATION, AWAITING CLOSURE or CLOSED are included in this view (see chapter 5 on improvement opportunities for details on the different status.)
19. The icons represent the status of the improvement opportunities.
20. This is the estimated electrical savings from the improvement opportunity. This is entered when the improvement opportunity is create or reviewed by the energy manager (see section 5.2.1.)
21. This is the actual electrical savings from the improvement opportunity entered by the assigned person at the FOR VALIDATION step (see section 5.2.2 for details.)
22. This is the estimated thermal savings from the improvement opportunity. This is entered when the improvement opportunity is create or reviewed by the energy manager (see section 5.2.1.)

23. This is the actual thermal savings from the improvement opportunity entered by the assigned person at the FOR VALIDATION step (see section 5.2.2 for details.)
24. This is the total of the estimated electrical savings from al the improvement opportunities related to the energy use selected. Ideally you should be trying to identify as many improvement opportunities with estimated electrical energy savings that are greater than the target electrical savings for the selected energy use (see item 11 above.)
25. This is the total actual electrical savings calculated from all of the improvement opportunities associated with the selected energy use.
26. This is the total of the estimated thermal savings from al the improvement opportunities related to the energy use selected. Ideally you should be trying to identify as many improvement opportunities with estimated thermal energy savings that are greater than the target electrical savings for the selected energy use (see item 11 above.)
27. This is the total actual thermal savings calculated from all of the improvement opportunities associated with the selected energy use.

6.2 Setting Overall Objectives & Targets

This section describes the instructions for configuring the Overall Objectives & Targets.



Objectives & Targets

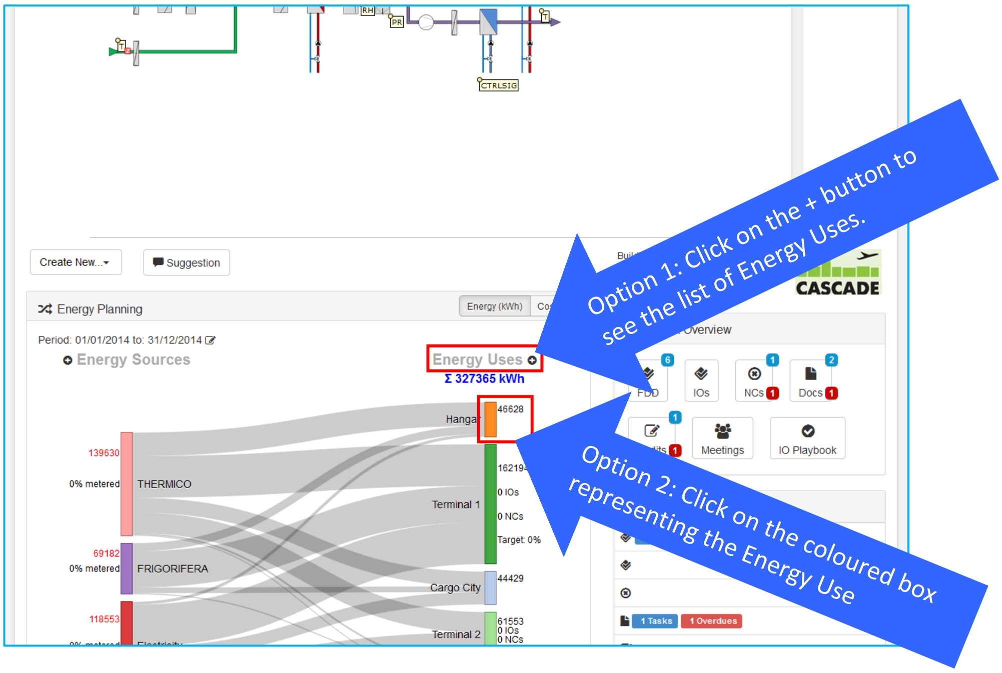
Target Saving – Elect (kWh): Enter the Electrical Target savings for the current year for this location. This is the electrical target that appears in the Objectives & Targets view.

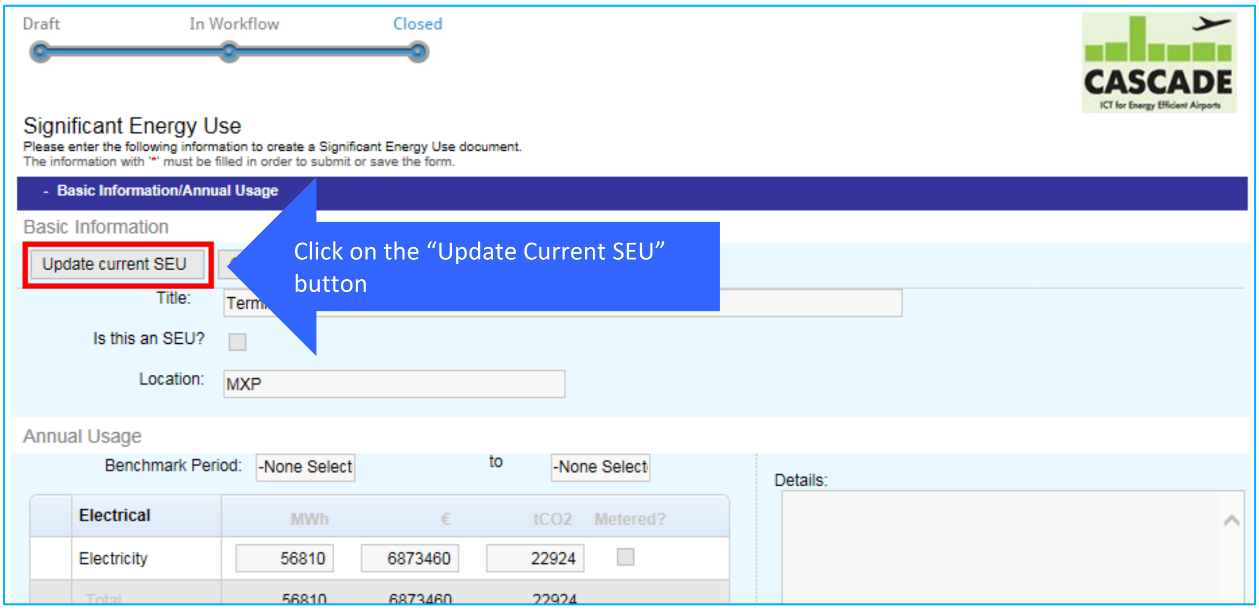
Target Saving – Thermal (kWh): Enter the Thermal Target savings for the current year for this location. The Thermal Target appears in the Objectives & Targets view.

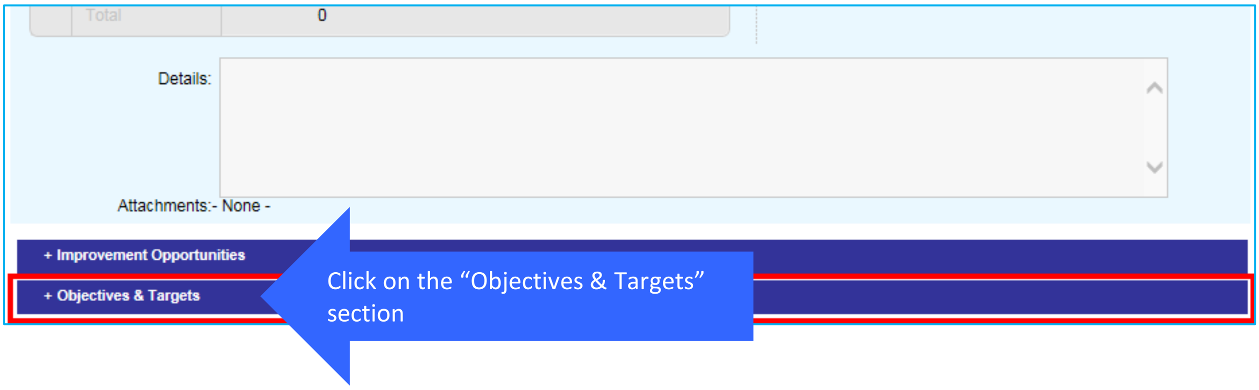
Energy Saving Commitment: Enter a statement of overall objective for energy savings for the current year. This appears as the Overall Objective in the Objectives & Targets view described in the previous sections.

6.3 Setting Energy Use Objectives & Targets

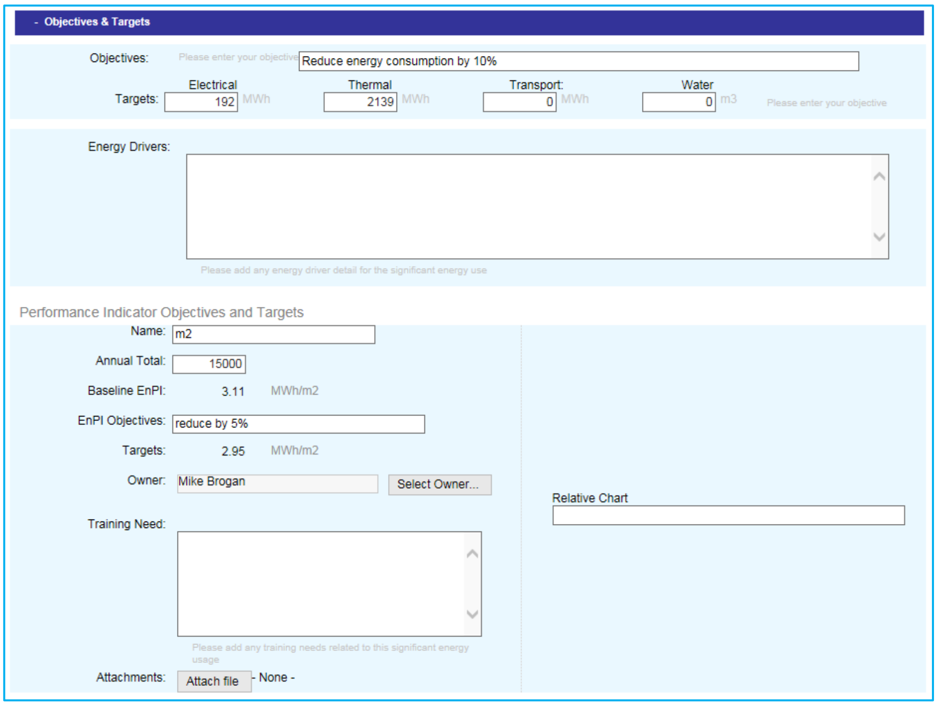
The Energy Use Objectives & Targets are inputted into the Energy Use form. The following are the steps in entering the Objectives & Targets for an Energy Use.





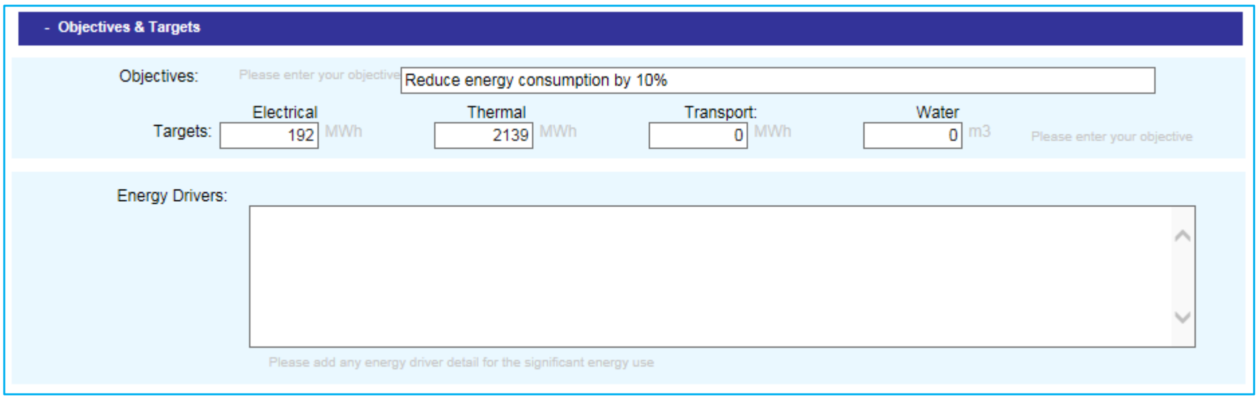


The following section appears:



Targets can be defined as both absolute values (kWh, MWh etc.) and also in terms of energy performance indicators (kWh/m2 or MWh/kg etc.) Targets based on absolute or total energy consumption values may not be very useful for some sectors such as industry where energy consumption may depend heavily on production levels.

The absolute or total energy targets are defined as follows:



Objectives & Targets

Objectives: Enter statement on targets for this energy use. This is the statement that appears in Objectives & Targets view for each energy use.

Targets:

- **Electrical**: Enter total amount of electrical energy that you would like to reduce. The units are based on the system units defined in the System Settings (see Administration help.)
- **Thermal**: Enter total amount of thermal energy that you would like to reduce. The units are based on the system units defined in the System Settings (see Administration help.)
- **Transport**: Enter total transport energy that you would like to reduce. The units are based on the system units defined in the System Settings (see Administration help.)
- **Water**: Enter water usage that you would like to reduce. The units are based on the system units defined in the System Settings (see Administration help.)

Energy Drivers: Enter a description of the various factors that influence energy usage for this Energy Use (e.g. level of production or quantity of products produced, degree days etc.)

Performance Indicator Objectives and Targets

Name: Enter the name of the performance indicator (e.g. m2, kgs)

Annual Total: Enter the annual total of the indicator (total m2, total kgs)

Baseline EnPI: The baseline EnPI is calculated from the total energy in the Annual Usage section.

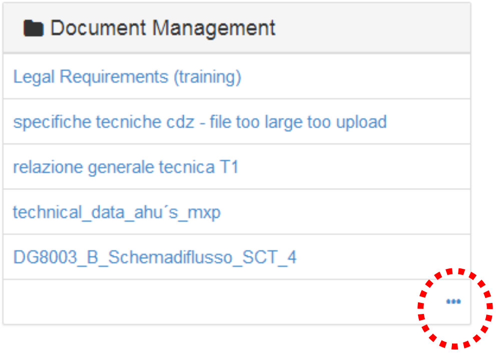
EnPI Objectives: Enter a statement describing the target.

Targets: The target is calculated based on the total energy reduction in the Objectives & Targets section above.

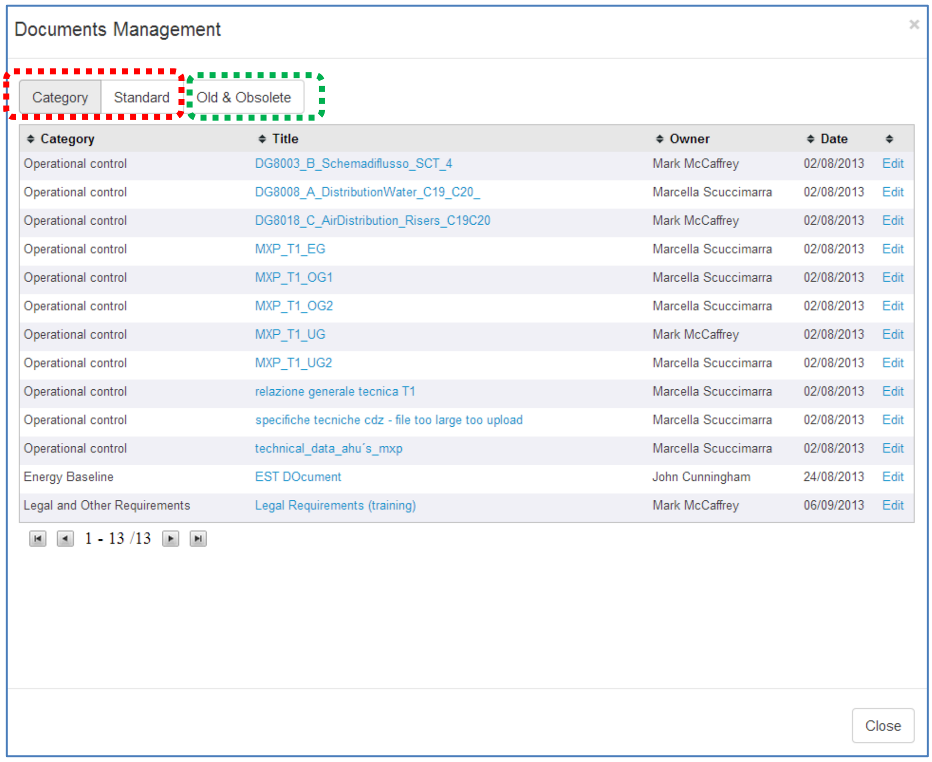
7 Document Management

7.1 Overview

Through this window it is possible to find documents. Documents can be sorted by Category or Standard by clicking on the correct button. By clicking on the Old & Obsolete button, it will be possible to check old documents, if such documents are present. “Close” button (bottom-right) closes the window.



Documents Management widget

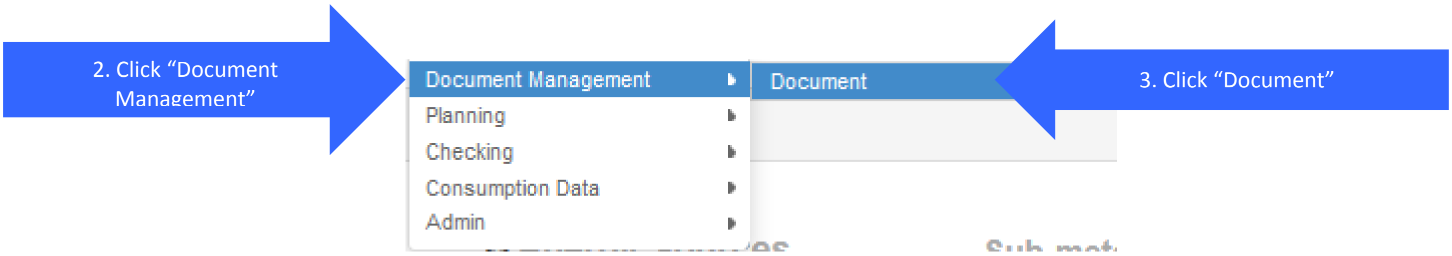


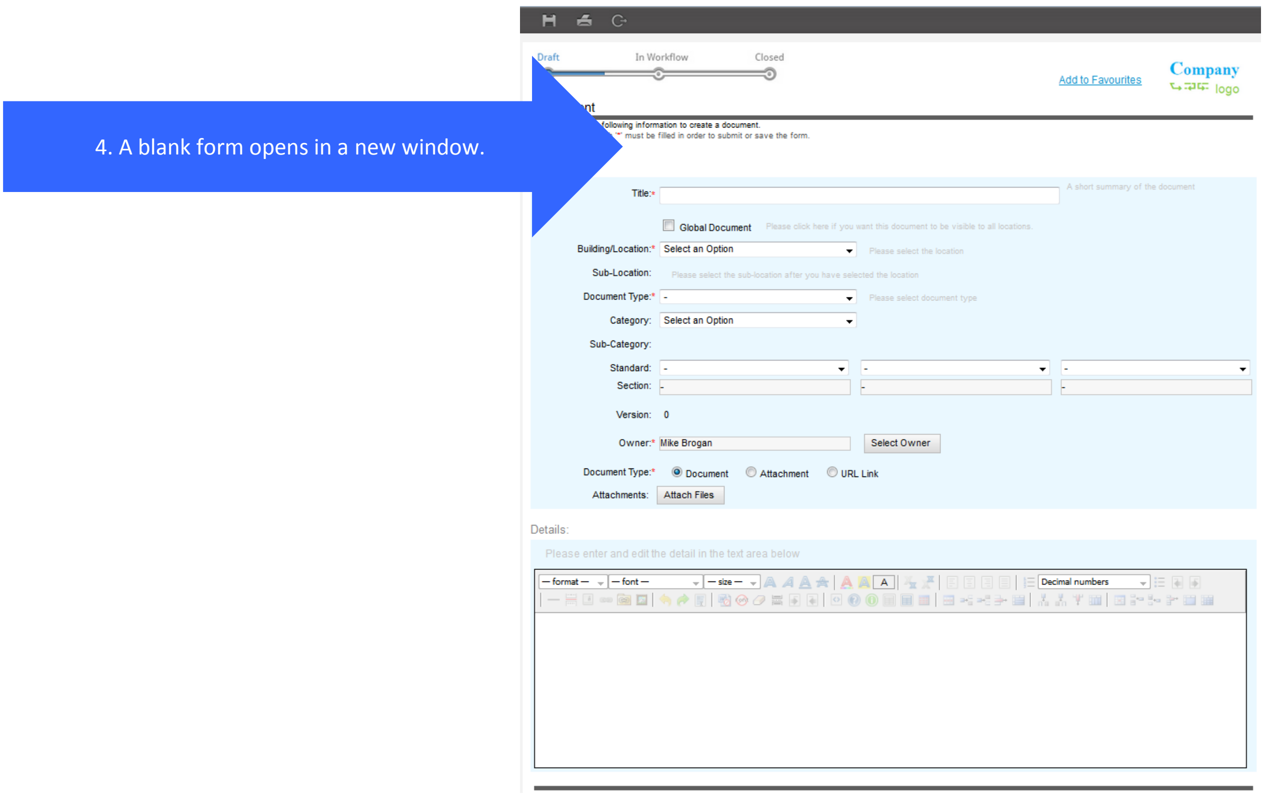
Category	Title	Owner	Date	
Operational control	DG8003_B_Schemadiflusso_SCT_4	Mark McCaffrey	02/08/2013	Edit
Operational control	DG8008_A_DistributionWater_C19_C20_	Marcella Scuccimarra	02/08/2013	Edit
Operational control	DG8018_C_AirDistribution_Risers_C19C20	Mark McCaffrey	02/08/2013	Edit
Operational control	MXP_T1_EG	Marcella Scuccimarra	02/08/2013	Edit
Operational control	MXP_T1_OG1	Marcella Scuccimarra	02/08/2013	Edit
Operational control	MXP_T1_OG2	Marcella Scuccimarra	02/08/2013	Edit
Operational control	MXP_T1_UG	Mark McCaffrey	02/08/2013	Edit
Operational control	MXP_T1_UG2	Marcella Scuccimarra	02/08/2013	Edit
Operational control	relazione generale tecnica T1	Marcella Scuccimarra	02/08/2013	Edit
Operational control	specifiche tecniche cdz - file too large too upload	Marcella Scuccimarra	02/08/2013	Edit
Operational control	technical_data_ahu´s_mxp	Marcella Scuccimarra	02/08/2013	Edit
Energy Baseline	EST DOcument	John Cunningham	24/08/2013	Edit
Legal and Other Requirements	Legal Requirements (training)	Mark McCaffrey	06/09/2013	Edit

Documents Management exploring window

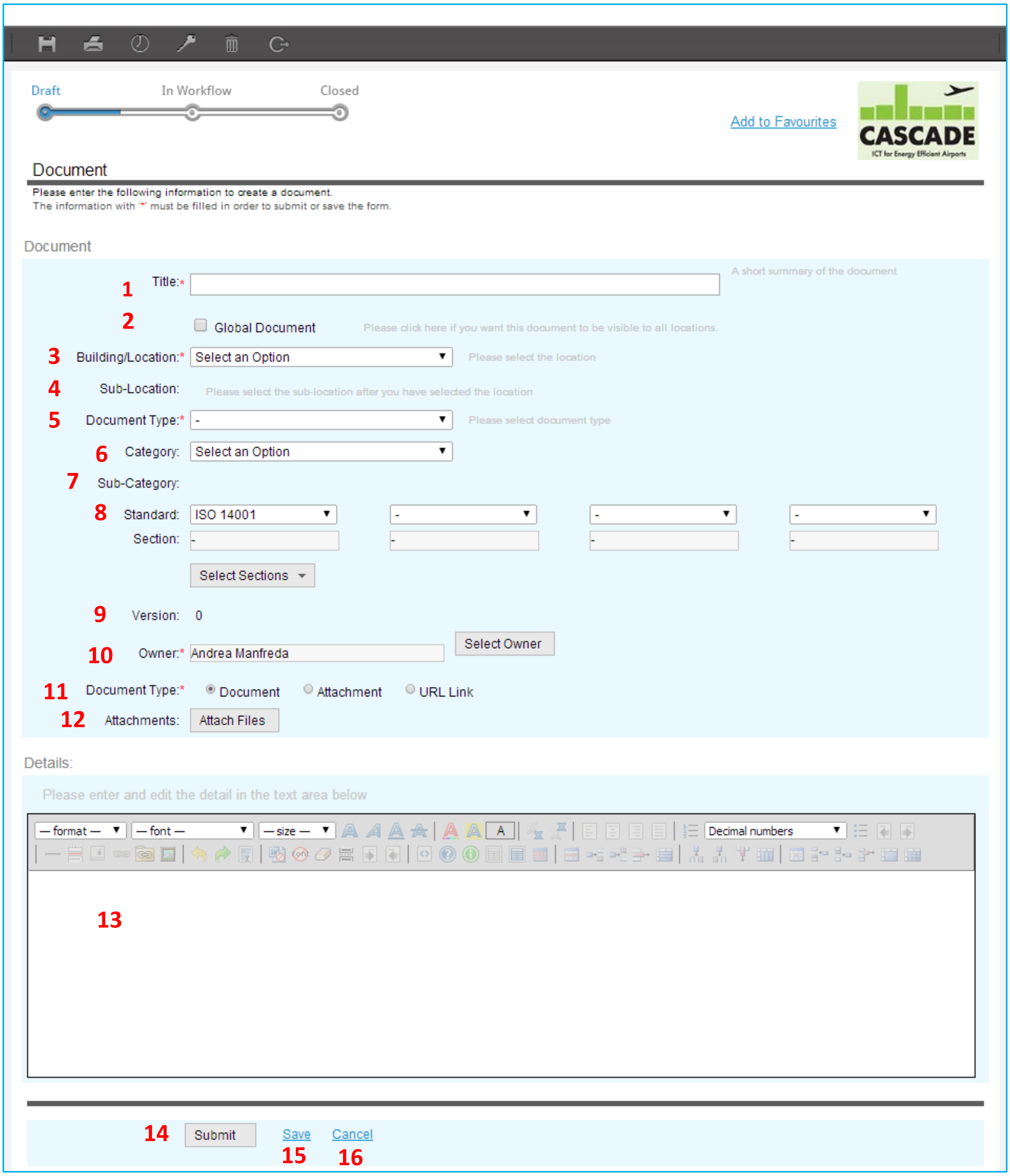
7.2 Creating a new Document

In order to create a new document, just select “Document” through the path “Create New” → “Document Management”.





A detailed description of the form and completing the fields is provided in the next section.



Fields that must be filled are:

DOCUMENT

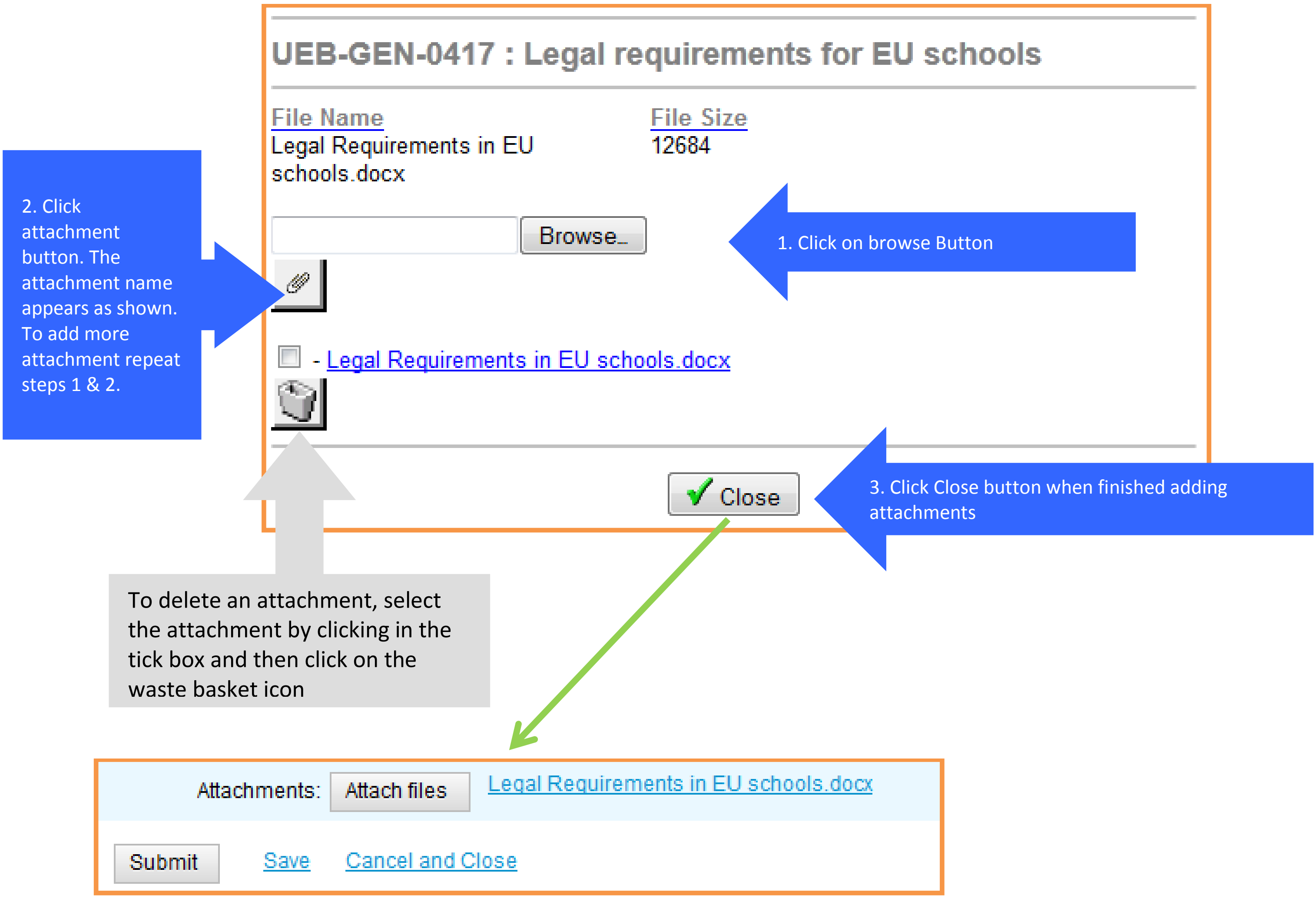
1. **Title –** insert the title of the document
2. **Global Document –** mark this flag if the document should be visible to all locations
3. **Building/Location –** select the location from the drop-down menu
4. **Sub-Location –** select the sub-location from the drop-down menu that opens
5. **Document type –** select the typology of the document from the drop-down menu

6. **Category –** select the category from the drop-down menu
7. **Sub-Category –** select the sub-category from the drop-down menu that opens
8. **Standard –** by selecting from the options listed in the drop-down menu, it is possible to assign many standards and relative sections to the document
9. **Version –** this flag shows the version of the document
10. **Owner –** by clicking on the “Select Invitees” button a window with the list of selectable owners opens
11. **Format –** the document can be created in three ways:
    - Document: filling the form fields (the body of the document must be written in the “Details” field)
    - Attachment: adding as an attachment; by selecting the attachment from the “Attach files” button
    - URL link: selecting this option, a new field appears; it must be filled with the URL
12. **Attachments –** by clicking on this button, a floating window opens: clicking on “Choose file” will be possible to choose the attachment. Then, clicking on the button with the “clip” picture, the file will be attached to the document

DETAILS

13. This field should be filled with the document body of with additional details that are not contained in the attachments. This field is only available when “Document” is selected as the format.
14. **Submit –** click this command to submit the document. The Submit button allows the user to submit the document to the energy manager (for the location selected in the Building/Location – item 3 of this list). This is the first step in the workflow where any new documents must be first accepted by the Energy Manager for inclusion in the system. If the energy manager is satisfied of the validity of the document, then the energy manager has a different workflow options. It can be submitted for review and authorization or it can be submitted directly for issue.
15. **Save –** click this command to save the document for further changes. If a document is saved and closed at this stage it is still has a “DRAFT” status. Draft documents created by individual users can be found in the users “My Tasks” widget on the dashboard.
16. **Cancel –** click this command to close the window and abandon the unsaved changes

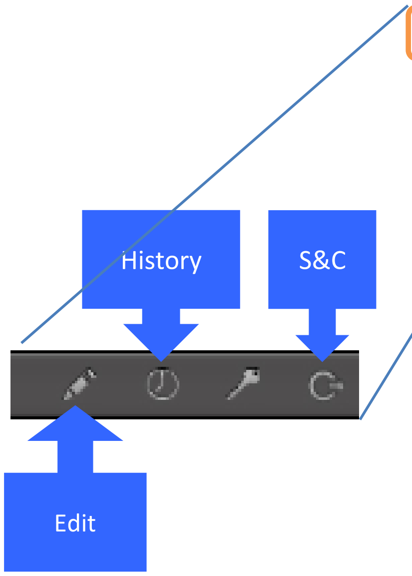
7.2.1 Adding an Attachment

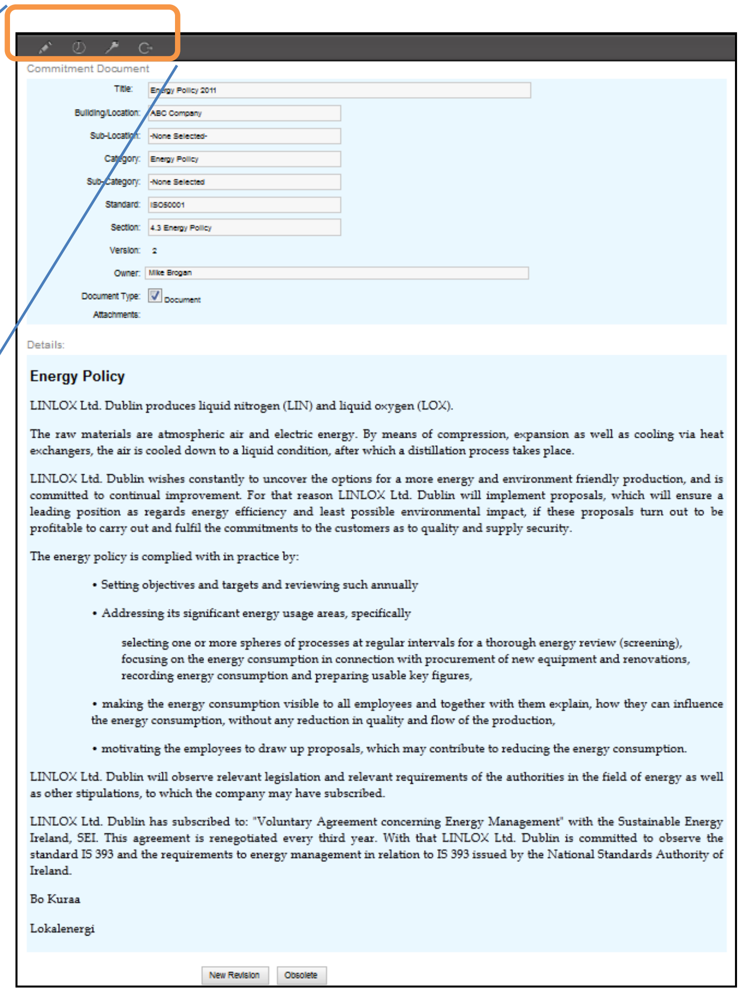


"In Progress" Documents can be checked in the "System Overview" widget.

If a user has been assigned to review, authorize or issue a document, a task should also appear in the "Your Tasks" area.

7.2.2 Viewing a Document




Commitment Document

Title: Energy Policy 2011
Building/Location: ABC Company
Sub-Location: -None Selected-
Category: Energy Policy
Sub-Category: -None Selected
Standard: ISO50001
Section: 4.3 Energy Policy
Version: 2
Owner: Mike Brogan
Document Type: Document
Attachments:

Details:

Energy Policy

LINLOX Ltd. Dublin produces liquid nitrogen (LIN) and liquid oxygen (LOX).

The raw materials are atmospheric air and electric energy. By means of compression, expansion as well as cooling via heat exchangers, the air is cooled down to a liquid condition, after which a distillation process takes place.

LINLOX Ltd. Dublin wishes constantly to uncover the options for a more energy and environment friendly production, and is committed to continual improvement. For that reason LINLOX Ltd. Dublin will implement proposals, which will ensure a leading position as regards energy efficiency and least possible environmental impact, if these proposals turn out to be profitable to carry out and fulfil the commitments to the customers as to quality and supply security.

The energy policy is complied with in practice by:

- Setting objectives and targets and reviewing such annually
- Addressing its significant energy usage areas, specifically

  selecting one or more spheres of processes at regular intervals for a thorough energy review (screening), focusing on the energy consumption in connection with procurement of new equipment and renovations, recording energy consumption and preparing usable key figures,

- making the energy consumption visible to all employees and together with them explain, how they can influence the energy consumption, without any reduction in quality and flow of the production,
- motivating the employees to draw up proposals, which may contribute to reducing the energy consumption.

LINLOX Ltd. Dublin will observe relevant legislation and relevant requirements of the authorities in the field of energy as well as other stipulations, to which the company may have subscribed.

LINLOX Ltd. Dublin has subscribed to: "Voluntary Agreement concerning Energy Management" with the Sustainable Energy Ireland, SEI. This agreement is renegotiated every third year. With that LINLOX Ltd. Dublin is committed to observe the standard IS 393 and the requirements to energy management in relation to IS 393 issued by the National Standards Authority of Ireland.

Bo Kuraa

Lokalenergi

New Revision | Obsolete

Edit

- If a user has sufficient privileges they can edit a document (See next slide for more information)

History

- Information on the history of the document can be viewed by clicking on the History symbol.

Save & Close (S&C)

- A user can Save and close the document by clicking this button.

7.2.3 Editing a Document

Category | Standard | Old & Obsolete

Category	Subcategory	Title	Owner	
Distribution	forms	Outbound Trailer Log	Mike Brogan	Edit
Distribution	Receiving	Assigning Lot Numbers to Multiple Batch Loads & Toll Pr...	Cody Crawford	Edit
Maintenance	-	JC TEST 2	Shannon Gilbert	Edit
Quality Systems	HACCP	HACCP PROCEDURES - CCP Metal Detector Drop Thru - CQP/0...	Dave Nelson	Edit
SHE	Safety	Lockout Tagout	Christopher Uptegrove	Edit

Edit

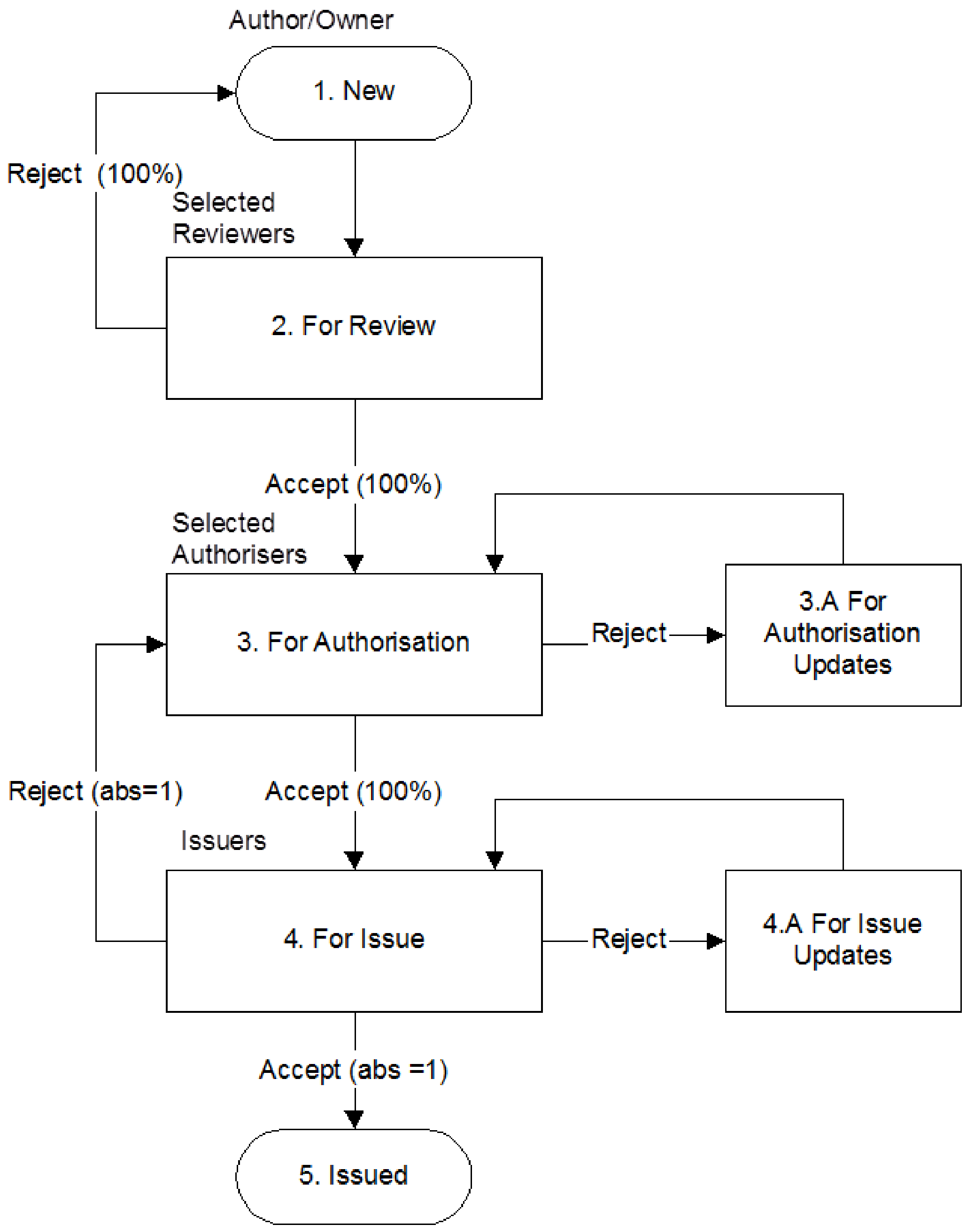
- If a user has sufficient privileges they can edit a document by clicking on the Edit button circled above

Or

- When they have opened the document by clicking the Edit icon (described above), the user can then click the Edit symbol in the top left corner (Step 2).

7.3 Document Management Workflow

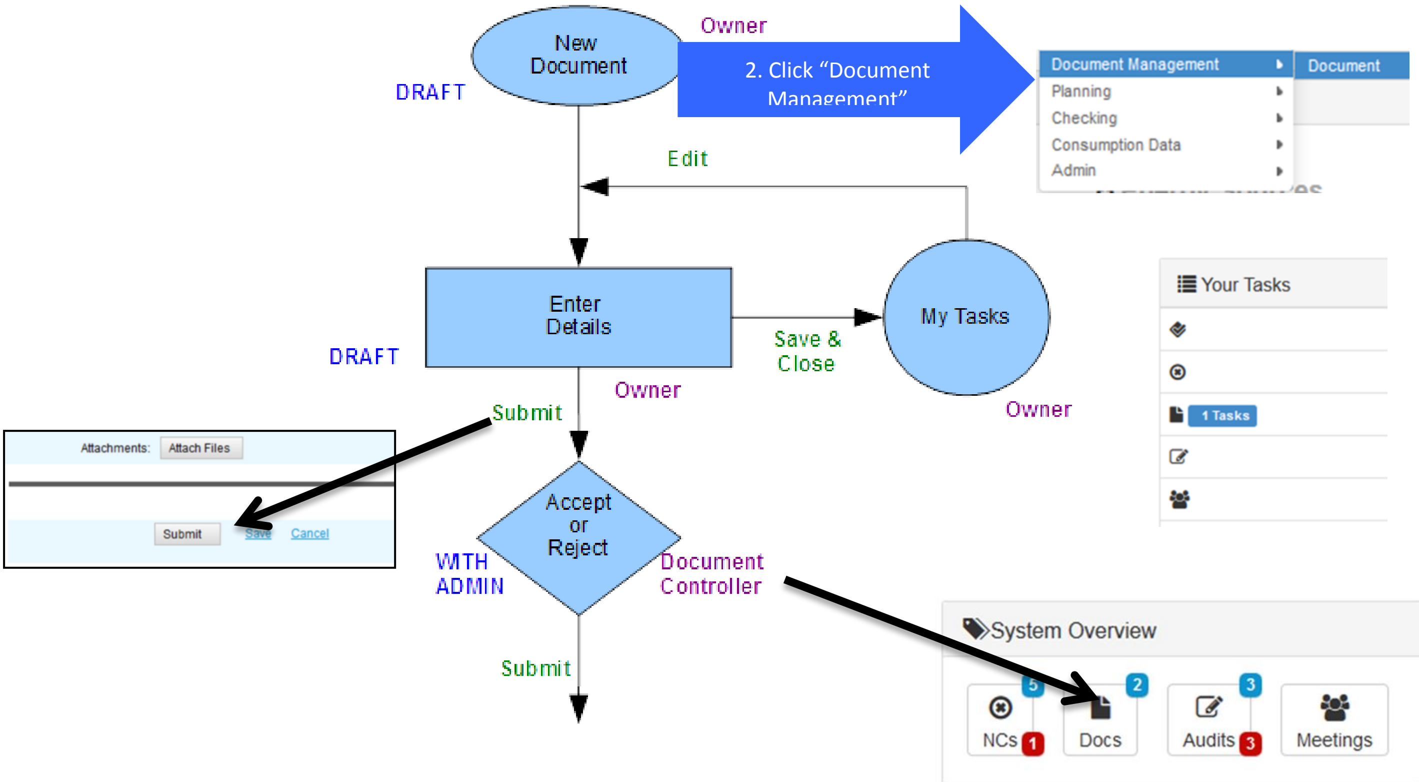
The following is the available workflow for reviewing, authorizing and issuing documents.



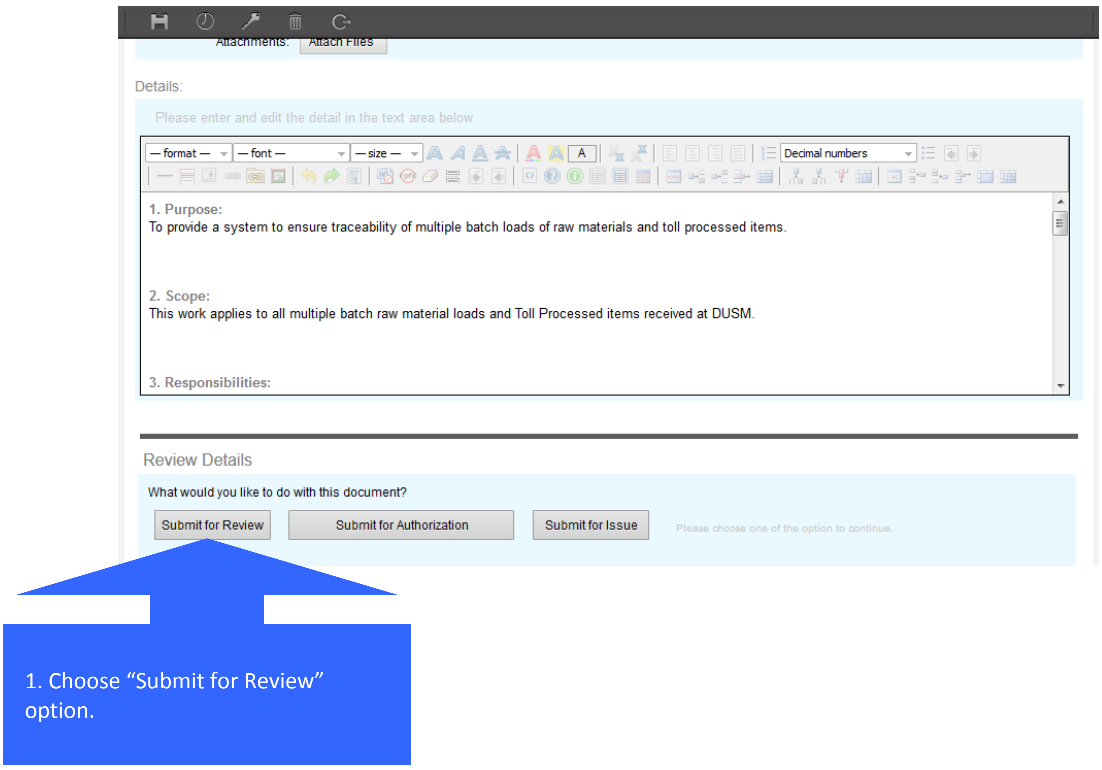
The following describes the steps in more detail.

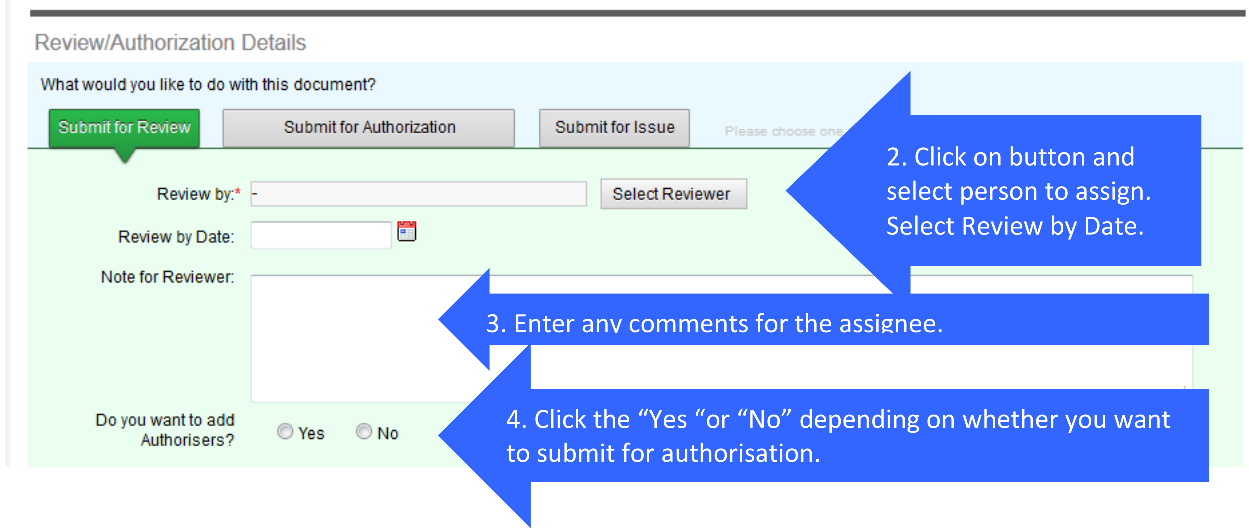
7.3.1 Requesting a New Document

The instructions for creating a new document and entering the details are described in section 7.2 above. A new document can be created by any user of the system. This new document is then submitted to the Energy Manager who decides if this document can be included in the system. The following describes the steps in requesting and submitting a new document:

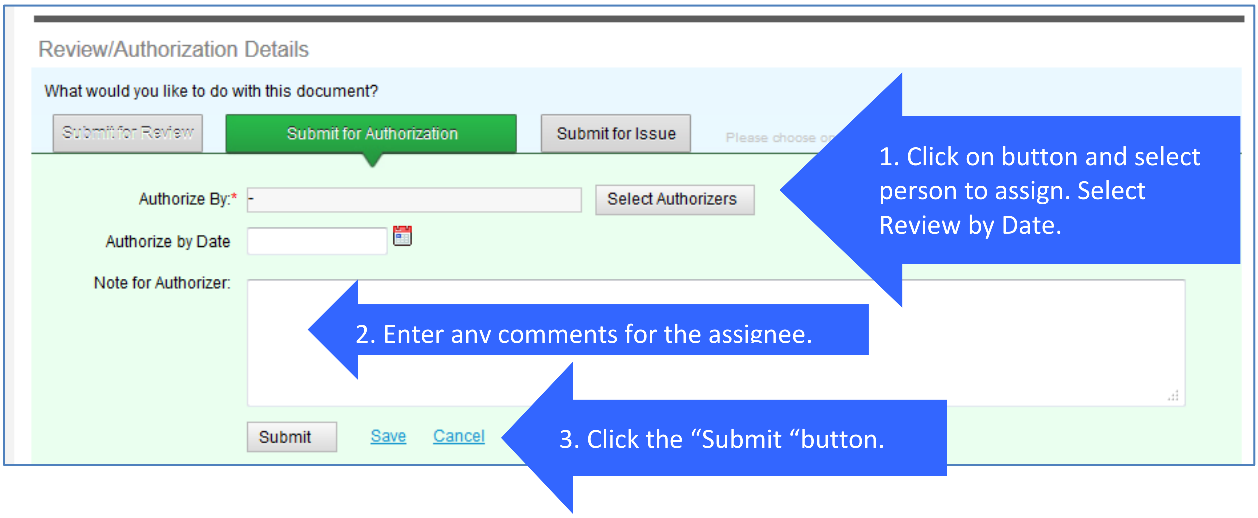


7.3.2 Submitting a Document for Review

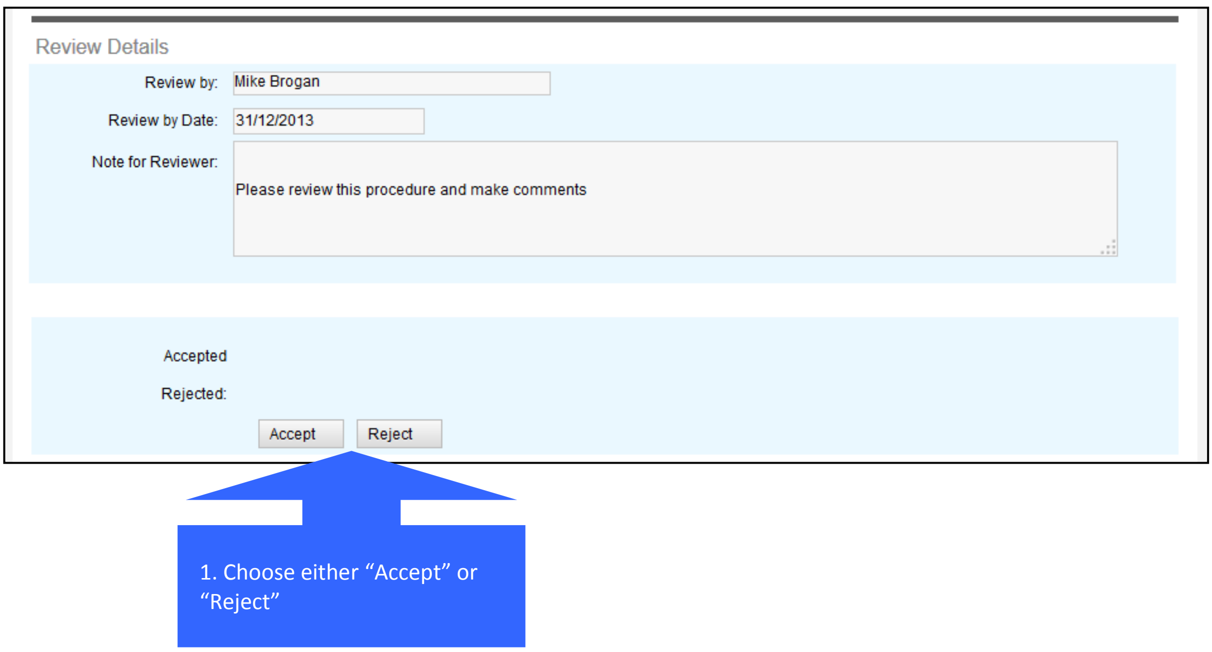


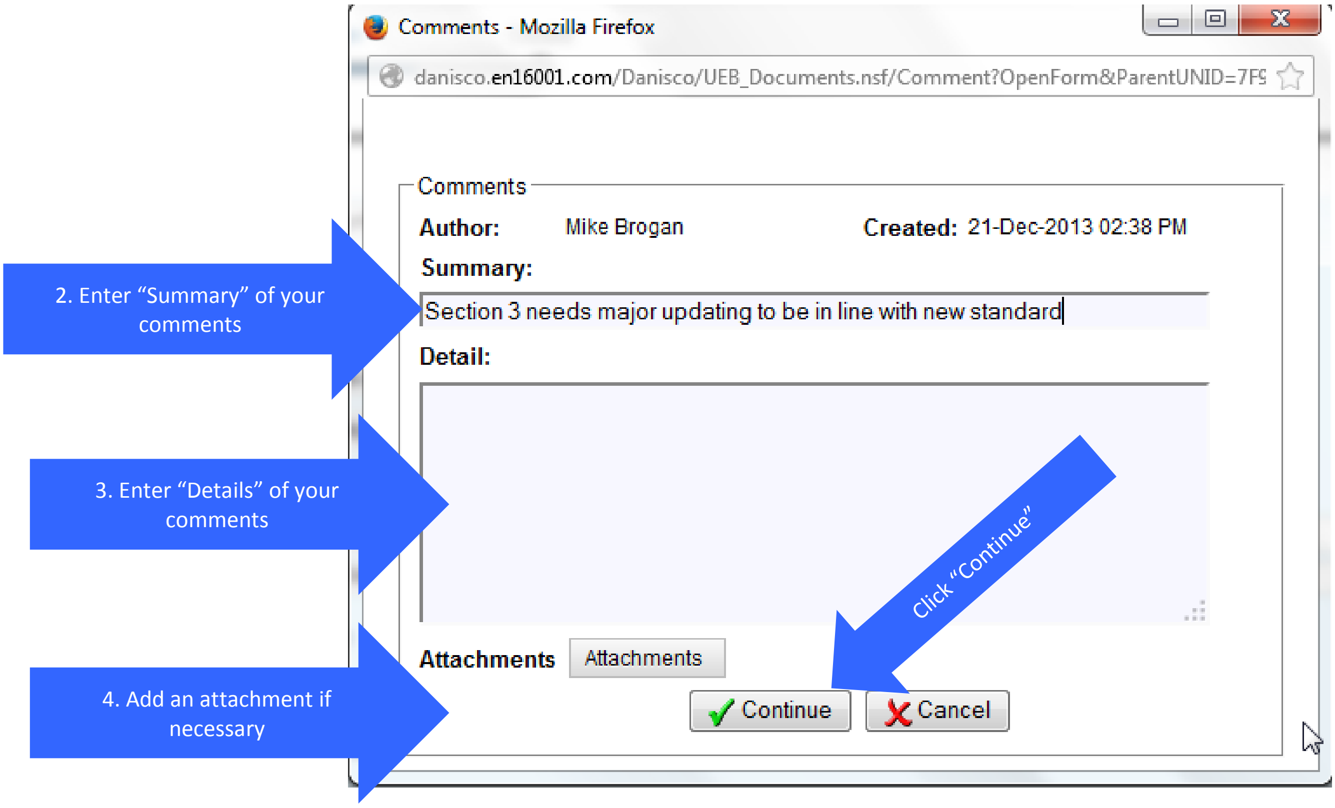


7.3.3 Submitting a Document for Authorization

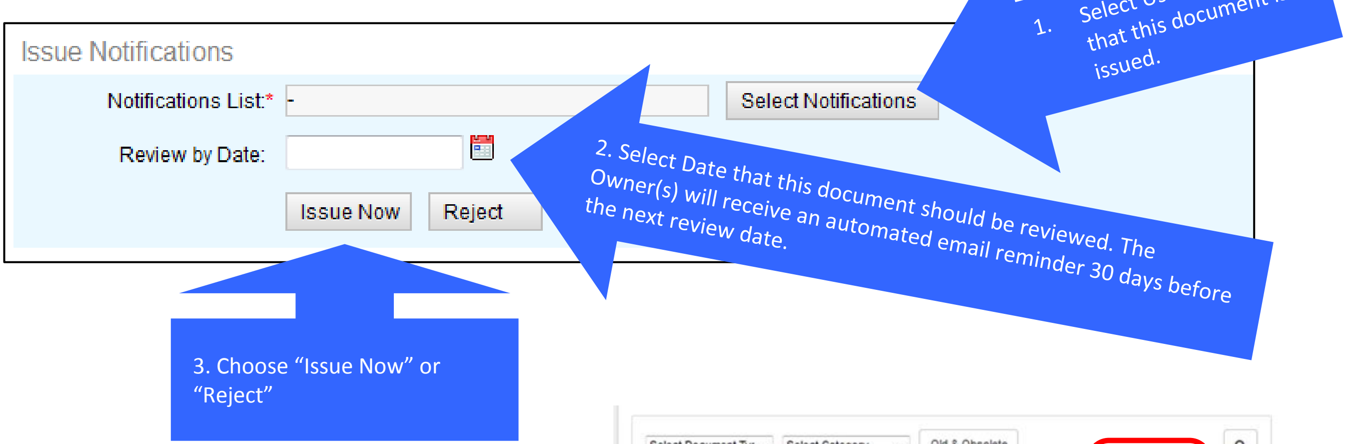


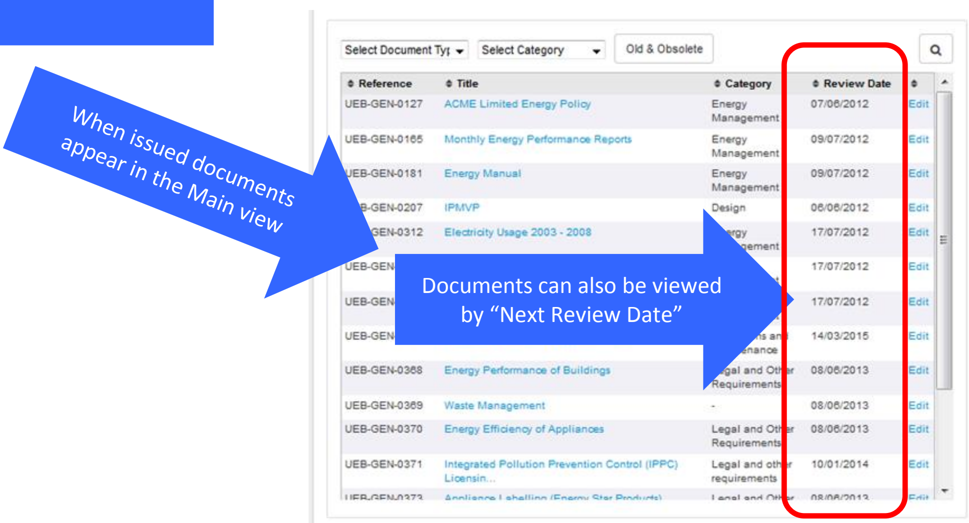
7.3.4 Reviewing/Authorizing a Document





7.3.5 Issuing a Document





8 Audit

8.1 Overview

An internal audit of an EnMS is an objective, systematic review of all or part of an organization's EnMS. The purpose of the audit is to:

- determine if the requirements are being met;
- Identify and drive improvements in energy performance and the EnMS.

This is accomplished by an internal audit process, which is documented (see ISO 50001:2011, 3.20), and should include the following:

a) competent auditors
b) verification of auditor competency
c) auditor independence from the area being audited
d) an audit schedule covering a defined period of time (usually at least one year)
e) an audit schedule and individual audit plans not based on clauses alone, but on the processes of the EnMS, taking into account the organization's facilities, equipment, systems and processes;
f) defined approaches for agreeing on EnMS audits scopes and objectives
g) processes for planning, and conducting audits, including the use of any audit forms, checklist or other audit tools, if applicable
h) compiling and communicating audit results to top management
i) clearly defined responsibilities and requirements for taking and completing corrective actions on audit nonconformities
j) appropriate records of the audit process and audit results;

EnMS internal audits should be prioritized and conducted more frequently for:

- areas that influence energy performance such as objectives, targets, SEUs, operational controls, significant deviations, measurement, monitoring and analysis, and energy review;
- other areas where important nonconformities have been identified in previous audits;
- areas that have experienced changes to equipment, systems, processes and personnel since the last EnMS audit;
- Areas where changes are planned that could have a significant impact on energy performance.

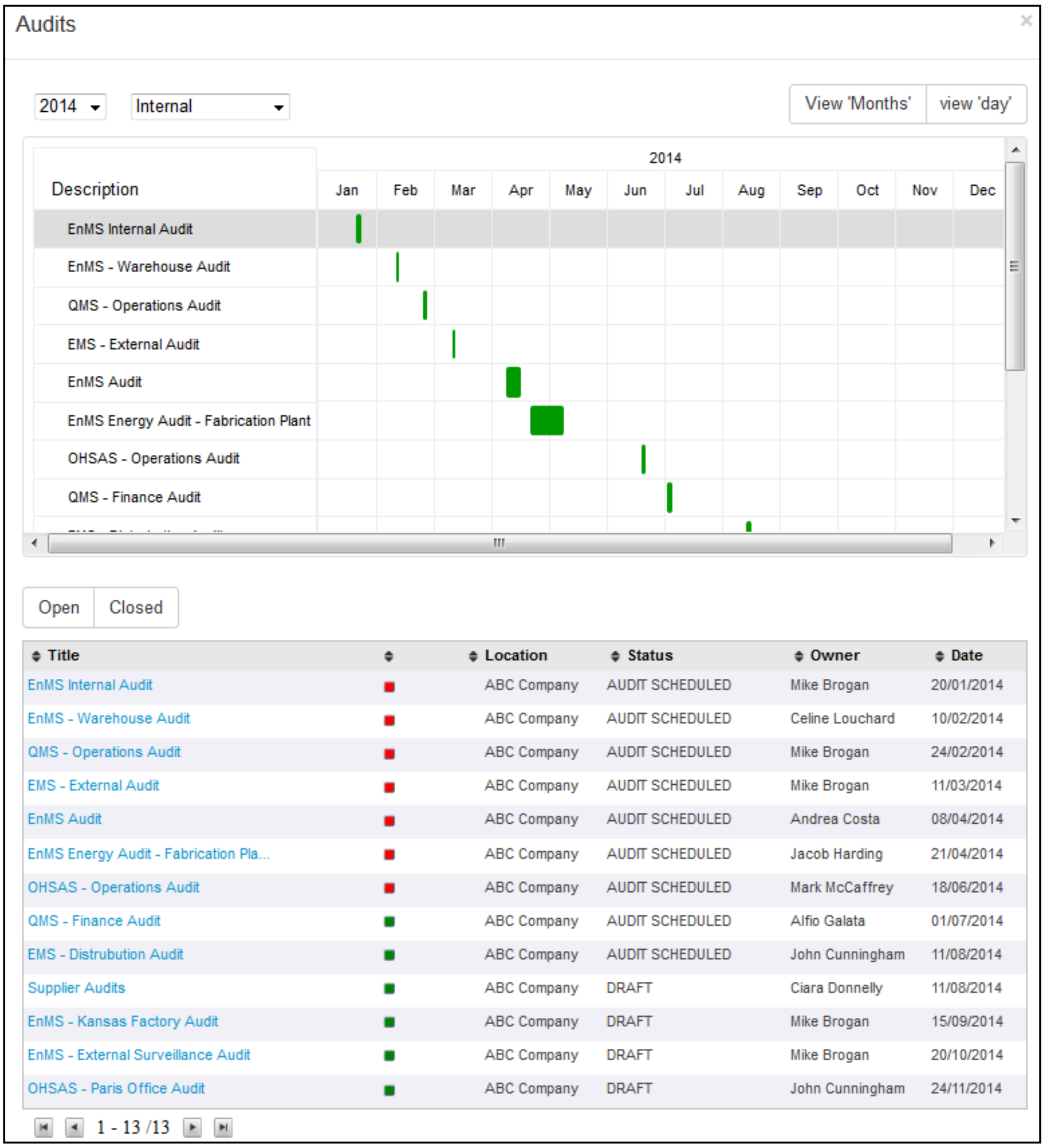
EnMS internal audits may be conducted less frequently for:

a) areas that do not significantly impact energy performance, such as document control; or
b) Processes that have fewer nonconformities from previous audits.

This ensures that the audit process is focused on the areas and processes that assist the organization in improving energy performance and the effectiveness of its EnMS.

The organization should maintain evidence that all the EnMS requirements were audited within a defined period of time specified on an audit schedule. This can be achieved in a number of ways:

- a matrix with processes/areas and the requirements applied to them during the audit(s);
- completed audit plans and audit schedules providing details of processes/ areas and requirements audited;
- Recorded in audit notes, audit report or other format.



Title		Location	Status	Owner	Date
EnMS Internal Audit		ABC Company	AUDIT SCHEDULED	Mike Brogan	20/01/2014
EnMS - Warehouse Audit		ABC Company	AUDIT SCHEDULED	Celine Louchard	10/02/2014
QMS - Operations Audit		ABC Company	AUDIT SCHEDULED	Mike Brogan	24/02/2014
EMS - External Audit		ABC Company	AUDIT SCHEDULED	Mike Brogan	11/03/2014
EnMS Audit		ABC Company	AUDIT SCHEDULED	Andrea Costa	08/04/2014
EnMS Energy Audit - Fabrication Pla...		ABC Company	AUDIT SCHEDULED	Jacob Harding	21/04/2014
OHSAS - Operations Audit		ABC Company	AUDIT SCHEDULED	Mark McCaffrey	18/06/2014
QMS - Finance Audit		ABC Company	AUDIT SCHEDULED	Alfio Galata	01/07/2014
EMS - Distrubution Audit		ABC Company	AUDIT SCHEDULED	John Cunningham	11/08/2014
Supplier Audits		ABC Company	DRAFT	Ciara Donnelly	11/08/2014
EnMS - Kansas Factory Audit		ABC Company	DRAFT	Mike Brogan	15/09/2014
EnMS - External Surveillance Audit		ABC Company	DRAFT	Mike Brogan	20/10/2014
OHSAS - Paris Office Audit		ABC Company	DRAFT	John Cunningham	24/11/2014

Why are AUDITS important?

Regulation ISO 50001 states that audits are very important for the Energy Management System and must be regularly planned in order to ensure that:

- the EnMS conforms to planned arrangements for energy management (including the requirements of the ISO 50001)
- EnMS conforms with the energy objectives and targets established
- is effectively implemented and maintained, with confirmation of the improvements it brings to performances in terms of energy consumption

Who can use the AUDITS module?

The Audit management module can be used alike by:

- managers
- auditors
- outside regulators

Which is the scope of AUDITS module?

Scope of the AUDIT module is to ensure that everyone is always up to date on what is happening, what actions need to be carried out and how effective the actions have been implemented.

What can be practically performed with AUDITS module?

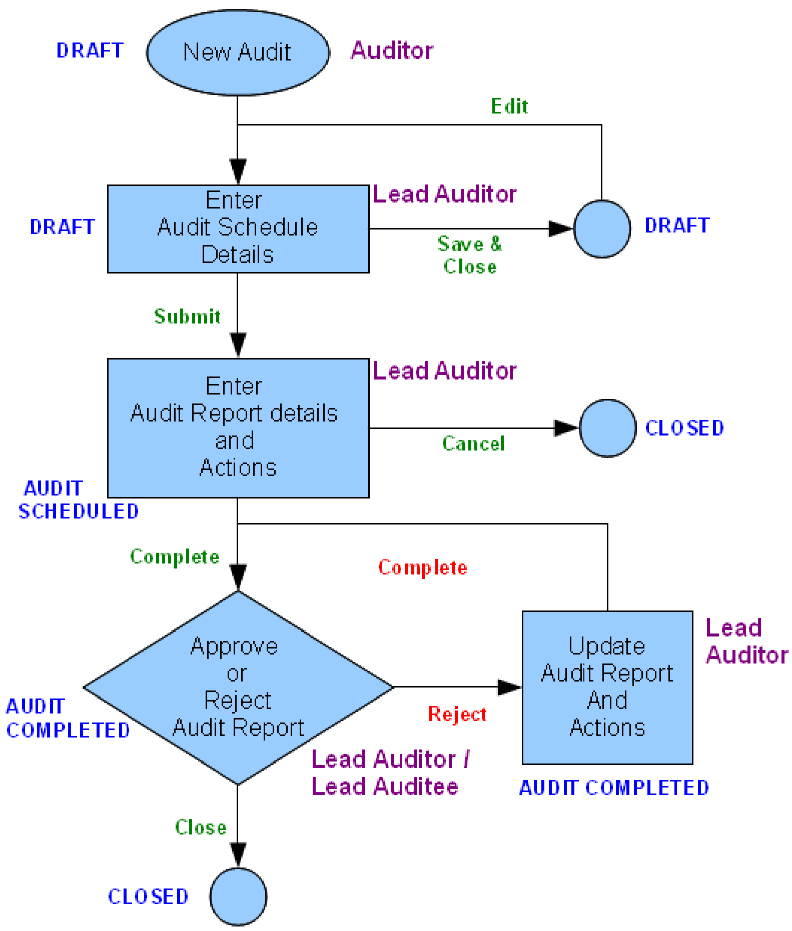
- Plan and schedule audits of all management systems (including: Quality, Environmental, Health & Safety, Energy, Customer, Suppliers and 3rd Party audits)
- Assign Auditors and Auditees
- Reference relevant standards and regulations
- Create audit checklists
- Review findings
- Ensure closure

8.1.1 Audit workflow

The next sections describe how to schedule an Audit, complete an Audit, check an Audit and finally review and approve an Audit based on the following audit workflow.

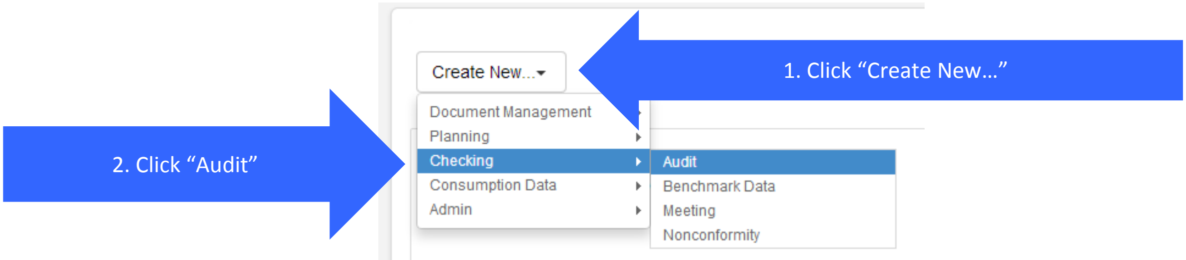
The Audit workflow allows the audit team:

- Create, plan and schedule audits
- Notify Auditors and Auditees of scheduled audits.
- Record Audit report and generate actions.
- Generate both energy and compliance improvement opportunities.
- Request Auditees to review and approve (or reject) audit findings.

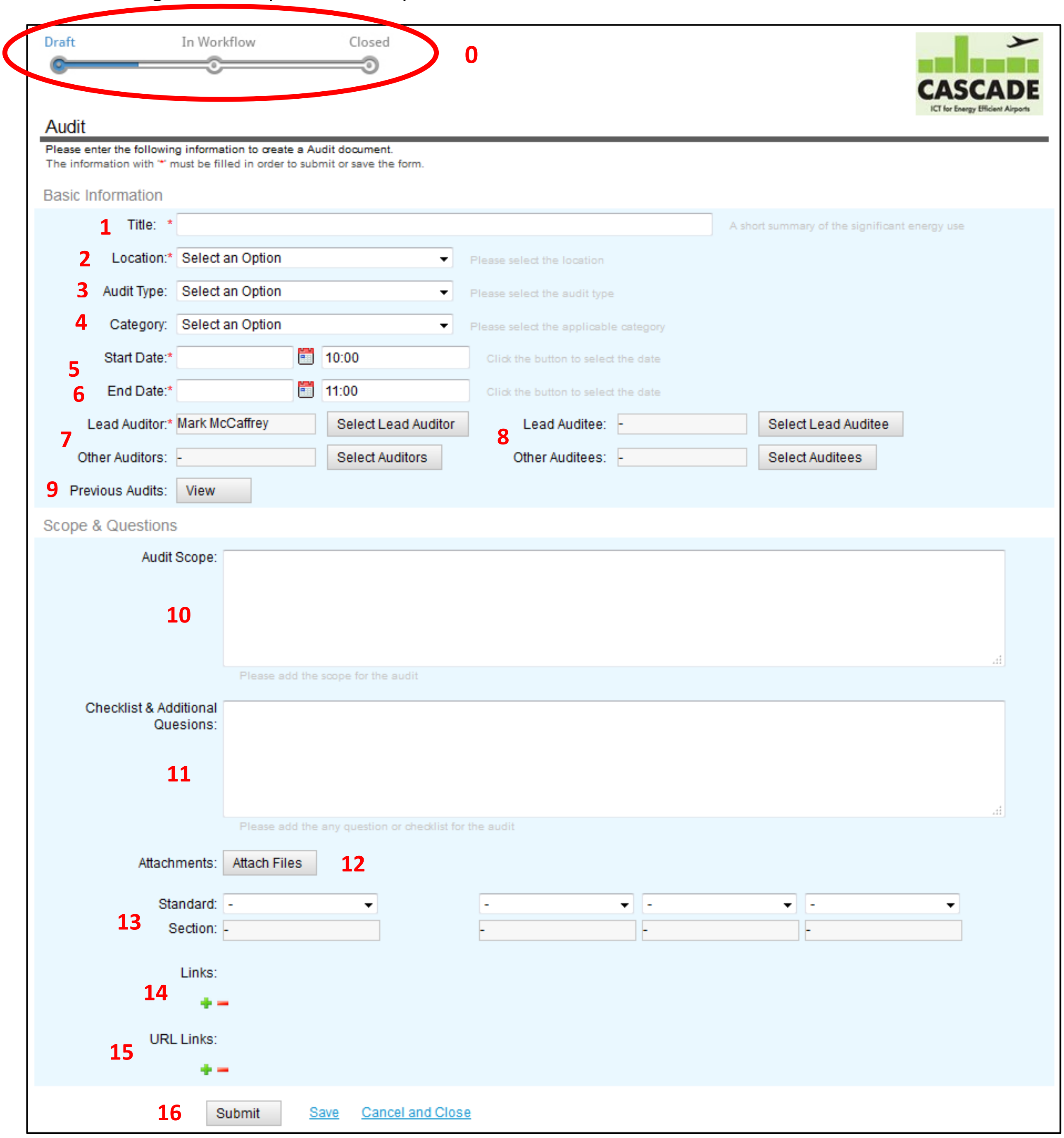


8.2 Creating and Scheduling a new Audit

The following instructions describe how to create a new Audit:



The following section explains each input fields and how to schedule an audit.



A new audit has a status of "Draft" shown on the status line above the form (highlighted in red with the label 0 in the above picture.

To schedule the Audit, fill all the fields of the form and click on “Submit”.

With reference to the labels in picture above that must be filled are:

Basic Information

1. **Title** – insert title of the Audit with reference to the subject
2. **Location** – choose the location of from a drop-down menu
3. **Audit type** – select the Audit type from a drop-down menu
4. **Category** – select the category from a drop-down menu
5. **Start Date** – select the expected start date of the Audit (by clicking on the calendar button on the right, a drop-down calendar will appear to help in the date selection)
6. **End Date** – select the expected end date of the Audit (by clicking on the calendar button on the right, a drop-down calendar will appear to help in the date selection)
7. **Lead Auditor / Other Auditors** – each of these fields must be filled by clicking on the selection buttons on the right: the Auditors must be chosen among those stated by the list contained in the floating window
8. **Lead Auditee / Other Auditees** – each of these fields must be filled by clicking on the selection buttons on the right: the Auditors must be chosen among those stated by the list contained in the floating window
9. **Previous Audits** – by clicking on the “View” button on the right, a database with data from previous Audits will appear: this instrument is an aid to recover data from previous Audits

Scope & Questions

10. **Audit scope** – this field must be filled with a description of the scope of the Audit
11. **Checklist and additional questions** – this open field must be filled with notes and other questions
12. **Attachments** – by clicking on this button, a floating window opens: clicking on “Choose file” will be possible to choose the attachment. Then, clicking on the button with the “clip” picture, the file will be attached to the document
13. **Standard** – this is a two-step selection:
    - by clicking on each of these three fields, it is possible to choose the Standard ISO Regulation which the Audit refers
    - **Sections –** after the previous selection, by clicking on the bottom field, a selection of the section of the above selected regulation could be performed
14. **Links** – this command gives the user two choices:
    - by clicking on the green button, labeled as “+”, one or more links could be added by typing the title in the left field and the URL in the right field
    - by clicking on the red button, labeled as “-“, it could be possible to erase the previous inserted links
15. URL Links – this command gives the user two choices:
    - by clicking on the green button, labeled as “+”, one or more links could be added by typing the title in the left field and the URL in the right field
    - by clicking on the red button, labeled as “-“, it could be possible to erase the previous inserted links

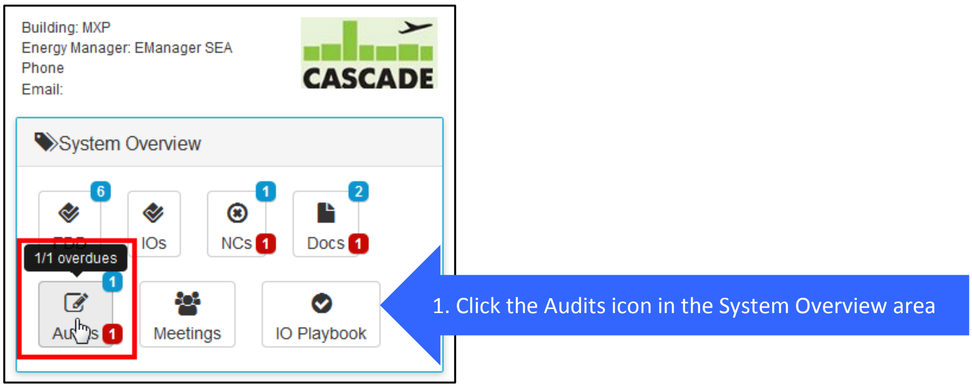
16. **Submit/Save/Cancel and Close** – with fields in this section it is possible to: submit the Audit (Submit), save the Audit for a further check (Save), cancel the Audit and close the window (Cancel and Close)

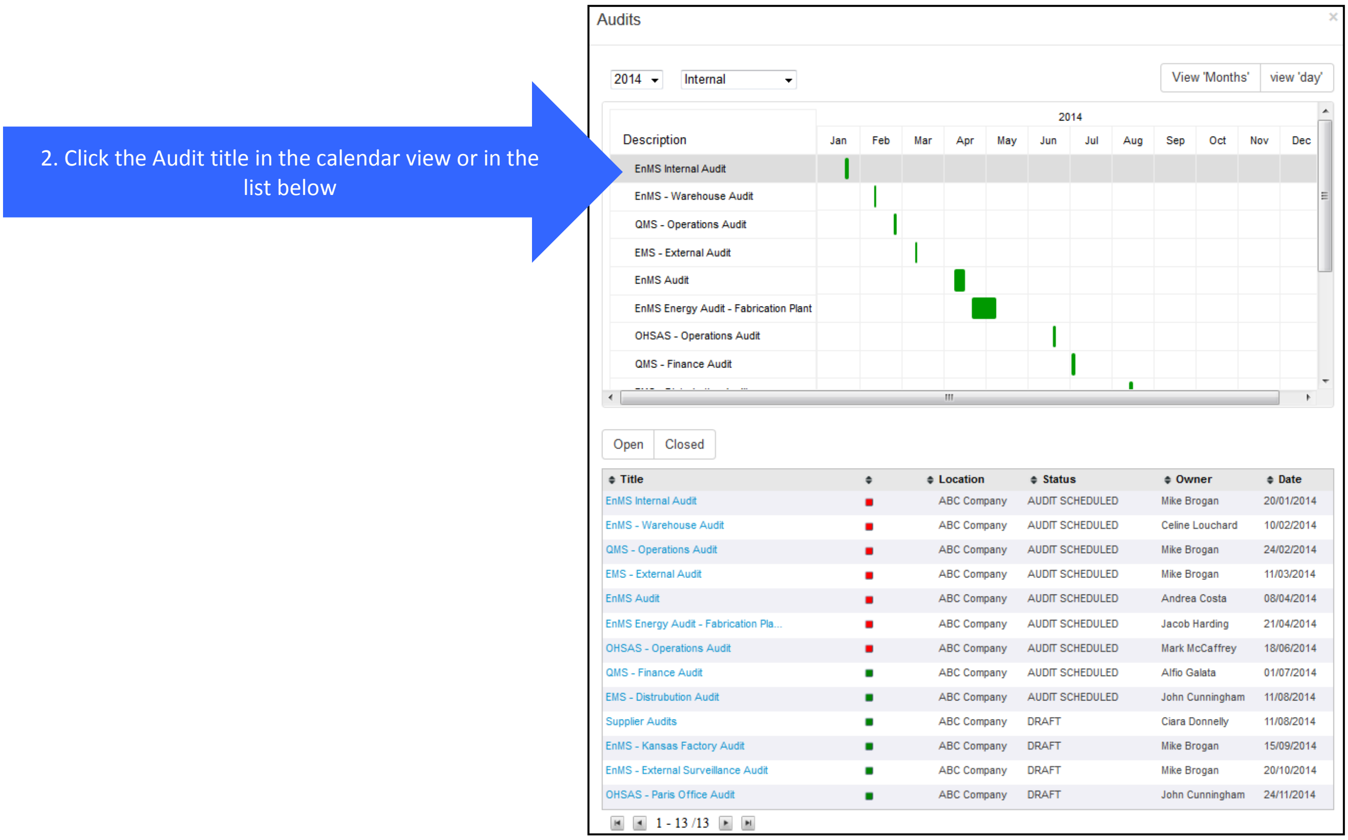
NOTES:

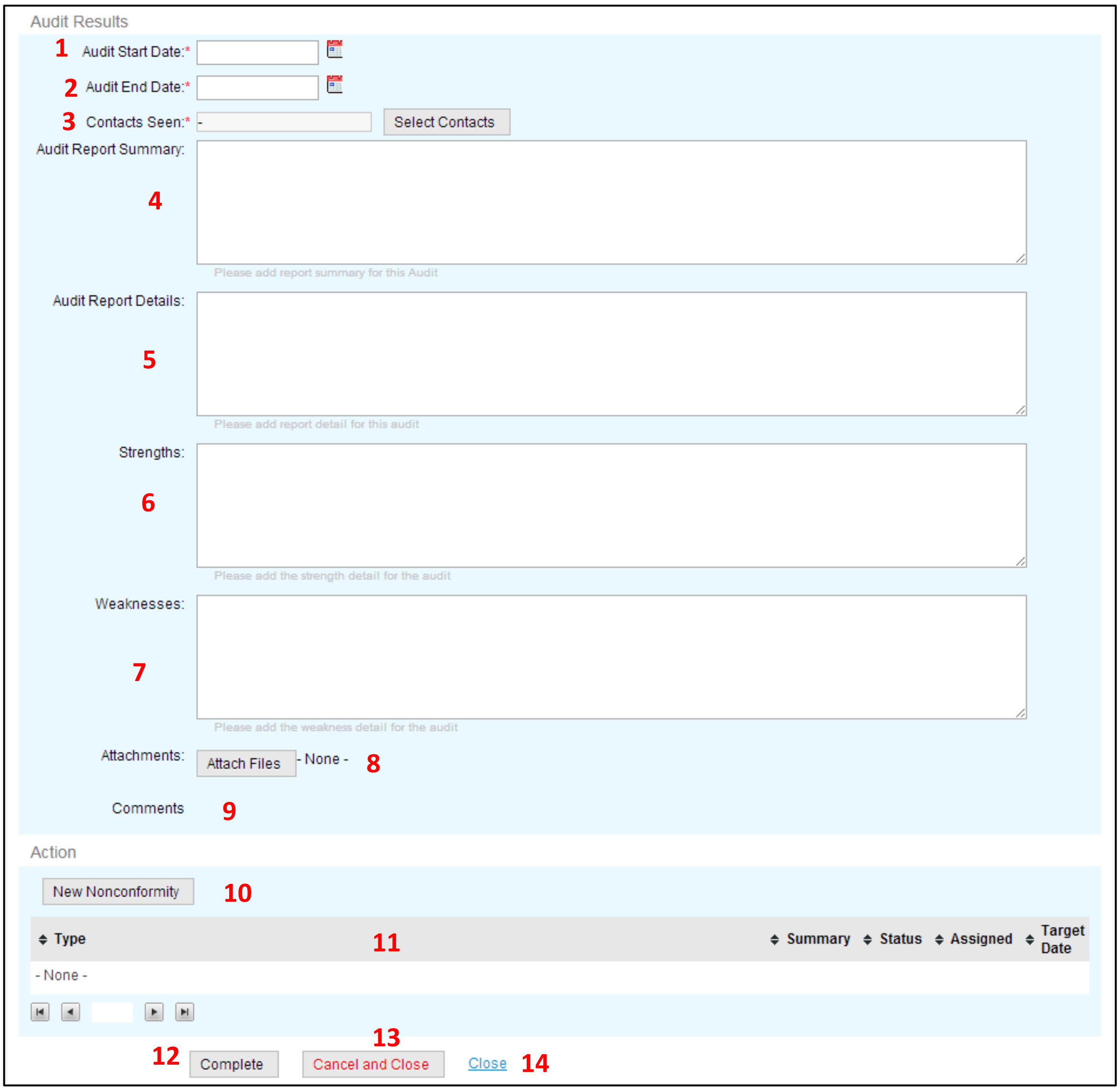
- An Audit can be saved and closed during the editing also without submitting. In this case Audit status remains as “Draft” and appears under the “Your Task” section of the software portal and shown on the dashboard (refer to paragraph 3.8 page 12)

8.3 Completing an Audit Report (including actions)

To select the Audit that must be completed, open the Audit database by clicking on the Audit button of the “System Overview” area on the dashboard as follows:







Fields that must be filled are:

Audit Results

1. **Start Date –** select the actual start date of the Audit (by clicking on the calendar button on the right, a drop-down calendar will appear to help in the date selection)
2. **End Date –** select the actual end date of the Audit (by clicking on the calendar button on the right, a drop-down calendar will appear to help in the date selection)
3. **Contacts Seen –** this field must be filled by clicking on the selection button on the right: the contacts seen must be chosen among those stated by the list contained in the floating window which appears
4. **Audit Report Summary –** enter a summary of the Audit findings
5. **Audit Report Details –** enter details of the Audit findings
6. **Strengths –** enter details of the strengths of the area found during the Audit
7. **Weaknesses –** enter details of the weaknesses of the area found during the Audit
8. **Attachments –** by clicking on this button, it is possible to attach files to the Audit
9. **Comments –** in this field auditees and auditors can leave comments when reviewing the final audit results

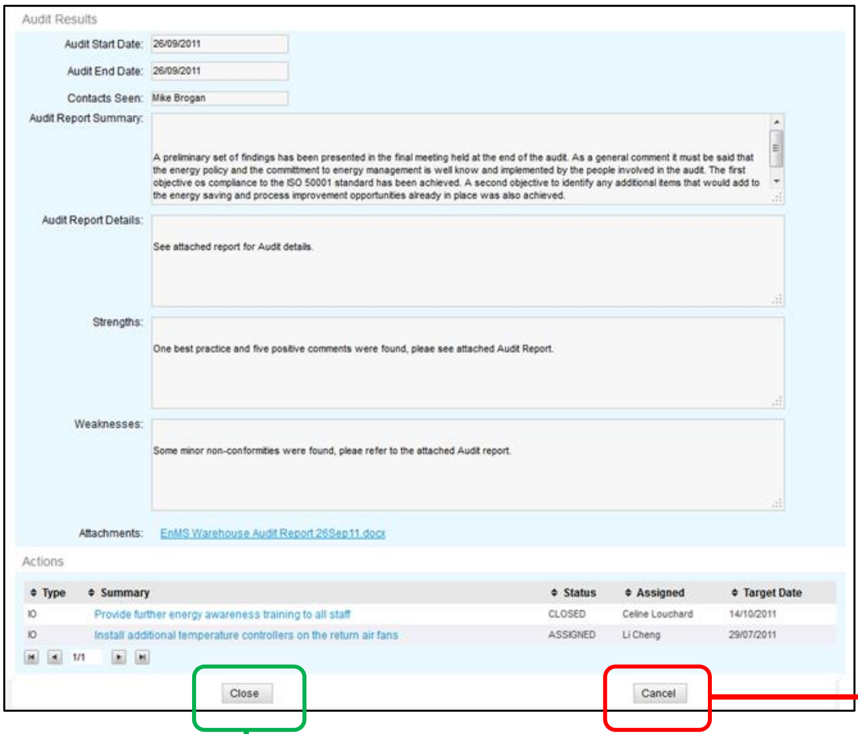
Action

10. **New Nonconformity –** click on this button to enter any compliance non-conformances based on the standard being audited against
11. **Type \ Summary \ Status \ Assigned \ Target Date –** this is a summary list of all the actions created from this Audit; the Summary title for each action can be clicked to open the related action in a new window

12. **Complete** – click this button when you have completed entering the audit report and all actions have been generated and you are satisfied with the audit report. The Lead Auditee/Other Auditors and Other Auditee will be notified that this audit has been completed
13. **Cancel and Close –** by clicking on this command, the audit will be canceled and auditors and auditees will be notified that the audit has been cancelled.
14. **Close –** by selecting this command, the form will be closed losing all the unsaved changes

8.4 Final Review and Approval of Audit Report

The Lead Auditee will be asked for an approval of the Audit report. In order to accept the report, he must click on the "Close" button, otherwise he can reject by clicking on "Reject". The Audit report is completed when both Lead Auditor and Lead Auditee have clicked on "Close".



Status: AUDIT COMPLETED

NOTE: The Audit will only be finally closed when both the Lead Auditor and the Lead Auditee have approved using the close button.

If you are not satisfied with the Audit Report and actions, click on this "Reject" button. This will notify the Lead Auditor that you need clarification on aspects of this audit report.

If you are satisfied with the Audit Report and actions, click on this "Close" button. This will notify the Lead Auditor that you approve this audit report.

9 Nonconformities

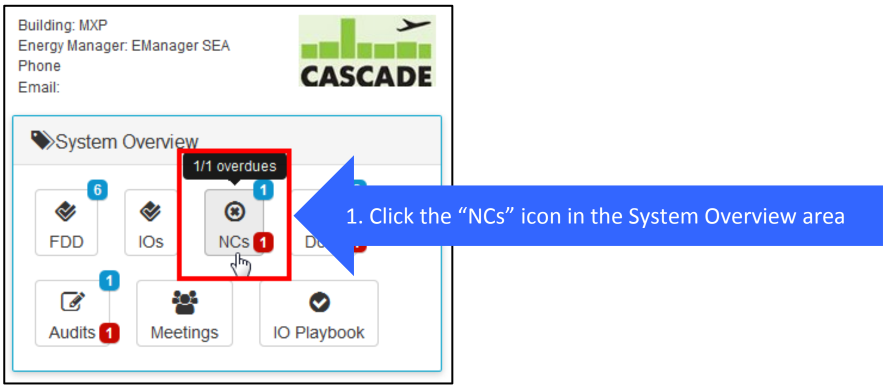
9.1 Overview

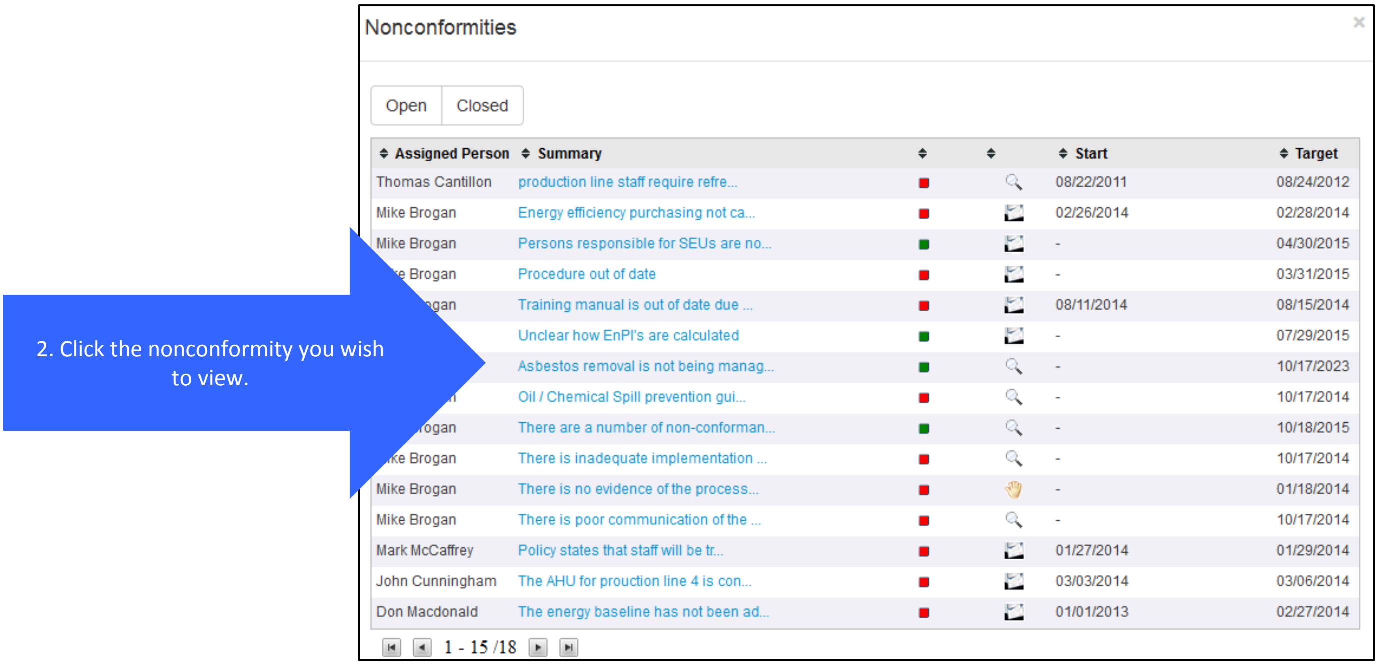
ISO 50001 states that the organization shall address actual and potential nonconformities by making corrections and by taking corrective actions, ensuring that all necessary changes are made to the EnMS.

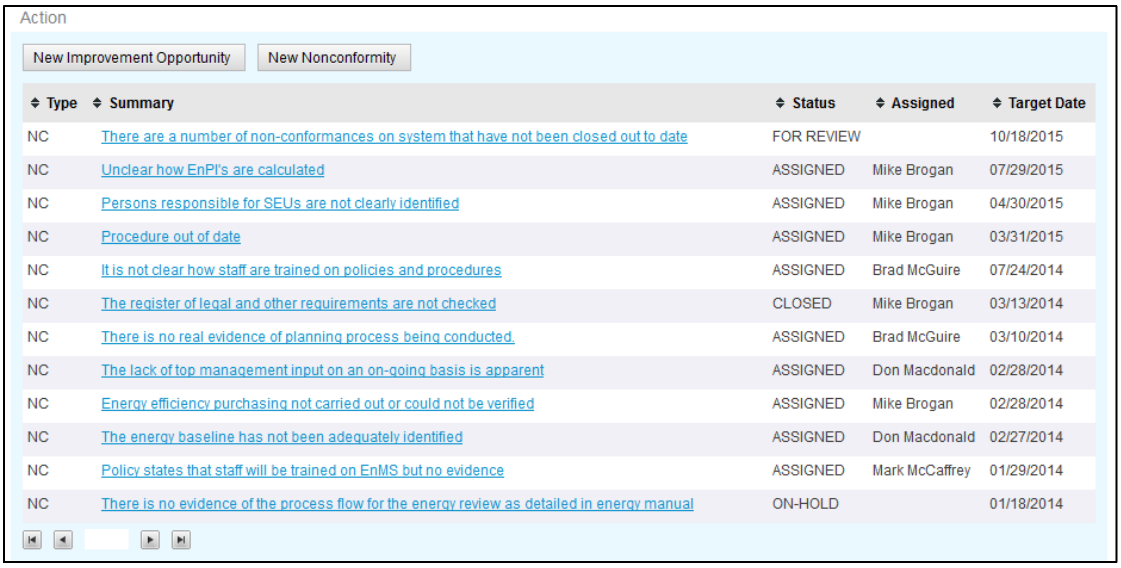
These actions include:

- Reviewing nonconformities or potential nonconformities
- Determining the causes of nonconformities or potential nonconformities
- Evaluating the need for action to ensure that nonconformities do not occur or recur
- Determining and implementing the appropriate action needed
- Maintaining records of corrective actions and preventive actions
- Reviewing the effectiveness of the corrective action or preventive action taken

Nonconformities can be found in **Audits** and also in the **System Overview** area of the dashboard using the "NCs" icon as shown below.







Action

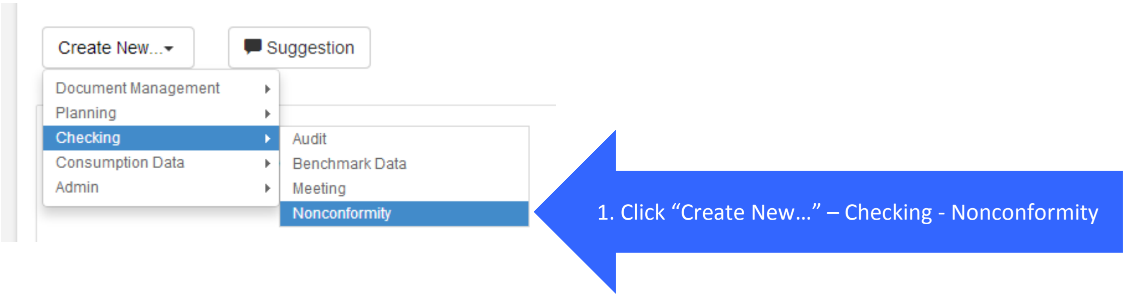
New Improvement Opportunity | New Nonconformity

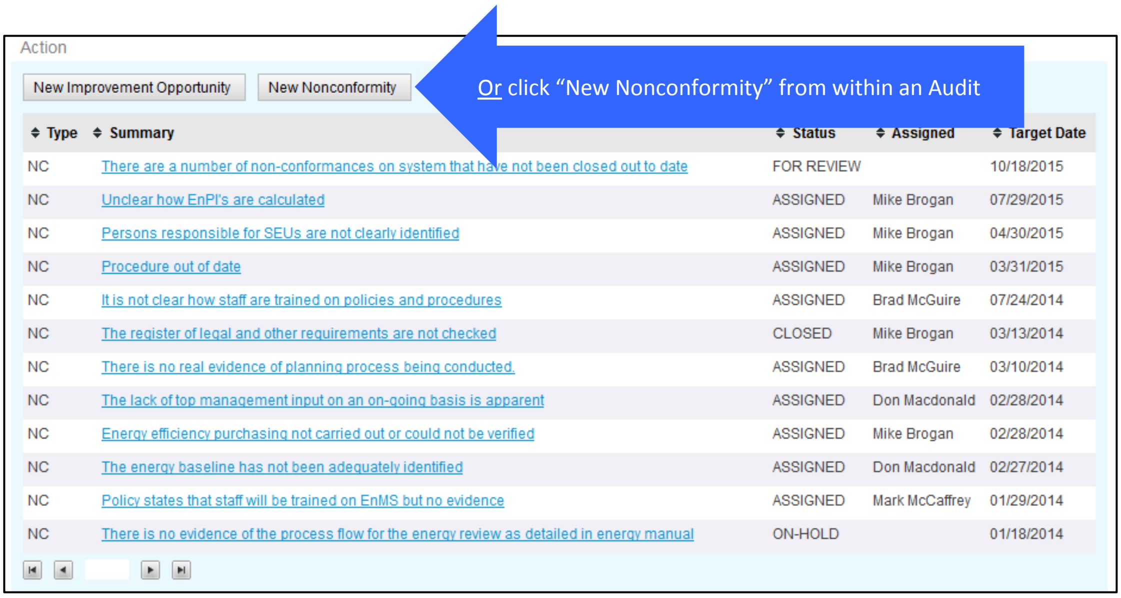
Type	Summary	Status	Assigned	Target Date
NC	There are a number of non-conformances on system that have not been closed out to date	FOR REVIEW		10/18/2015
NC	Unclear how EnPI's are calculated	ASSIGNED	Mike Brogan	07/29/2015
NC	Persons responsible for SEUs are not clearly identified	ASSIGNED	Mike Brogan	04/30/2015
NC	Procedure out of date	ASSIGNED	Mike Brogan	03/31/2015
NC	It is not clear how staff are trained on policies and procedures	ASSIGNED	Brad McGuire	07/24/2014
NC	The register of legal and other requirements are not checked	CLOSED	Mike Brogan	03/13/2014
NC	There is no real evidence of planning process being conducted.	ASSIGNED	Brad McGuire	03/10/2014
NC	The lack of top management input on an on-going basis is apparent	ASSIGNED	Don Macdonald	02/28/2014
NC	Energy efficiency purchasing not carried out or could not be verified	ASSIGNED	Mike Brogan	02/28/2014
NC	The energy baseline has not been adequately identified	ASSIGNED	Don Macdonald	02/27/2014
NC	Policy states that staff will be trained on EnMS but no evidence	ASSIGNED	Mark McCaffrey	01/29/2014
NC	There is no evidence of the process flow for the energy review as detailed in energy manual	ON-HOLD		01/18/2014

View of Nonconformities in an Audit

9.2 Creating a Nonconformity (Status = DRAFT)

Energy Manager and Lead Auditor can create Nonconformity by clicking on "Create New" → "Checking" → "Nonconformities" option or from within an Audit document.



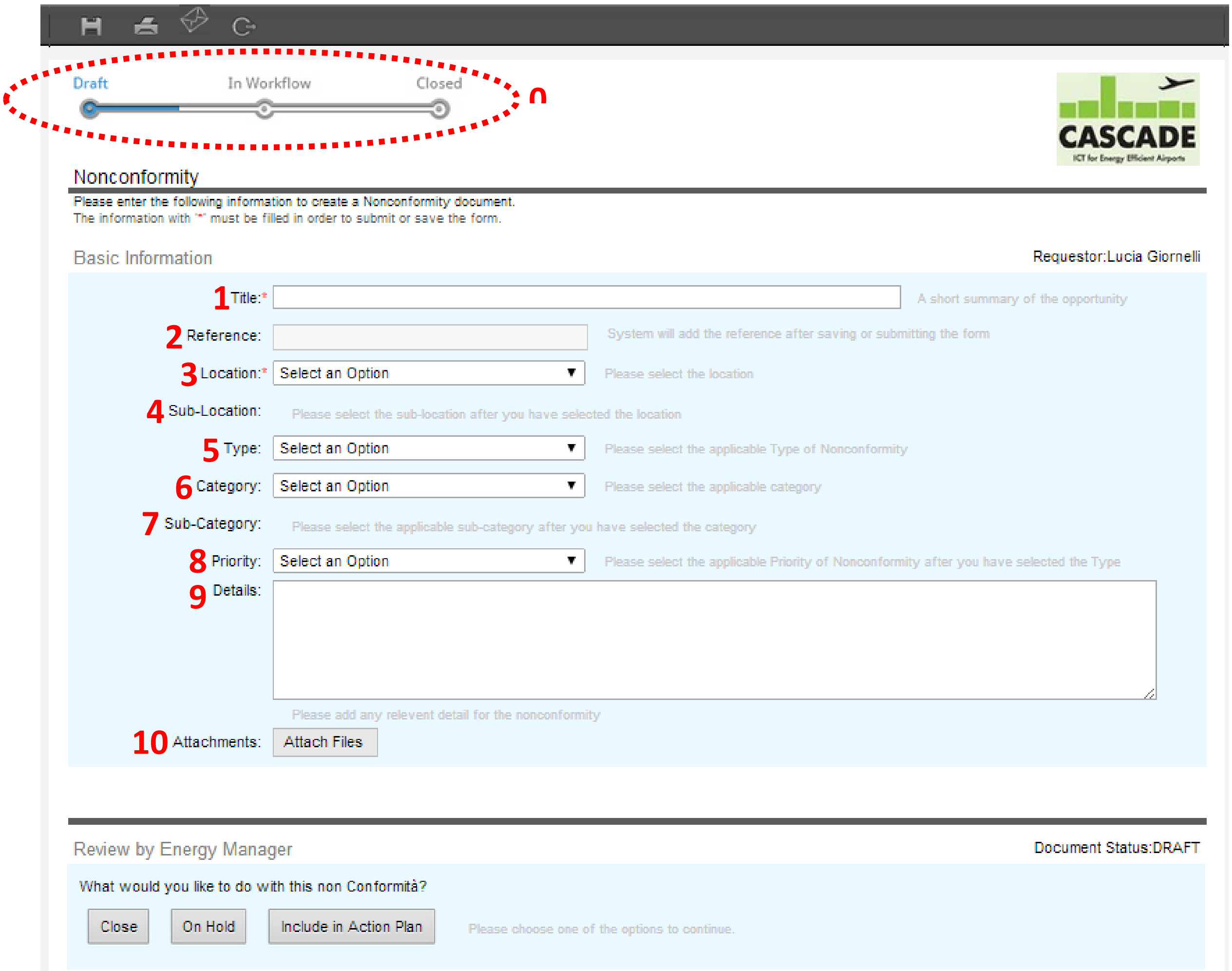


Action

New Improvement Opportunity | New Nonconformity

Type	Summary	Status	Assigned	Target Date
NC	There are a number of non-conformances on system that have not been closed out to date	FOR REVIEW		10/18/2015
NC	Unclear how EnPI's are calculated	ASSIGNED	Mike Brogan	07/29/2015
NC	Persons responsible for SEUs are not clearly identified	ASSIGNED	Mike Brogan	04/30/2015
NC	Procedure out of date	ASSIGNED	Mike Brogan	03/31/2015
NC	It is not clear how staff are trained on policies and procedures	ASSIGNED	Brad McGuire	07/24/2014
NC	The register of legal and other requirements are not checked	CLOSED	Mike Brogan	03/13/2014
NC	There is no real evidence of planning process being conducted.	ASSIGNED	Brad McGuire	03/10/2014
NC	The lack of top management input on an on-going basis is apparent	ASSIGNED	Don Macdonald	02/28/2014
NC	Energy efficiency purchasing not carried out or could not be verified	ASSIGNED	Mike Brogan	02/28/2014
NC	The energy baseline has not been adequately identified	ASSIGNED	Don Macdonald	02/27/2014
NC	Policy states that staff will be trained on EnMS but no evidence	ASSIGNED	Mark McCaffrey	01/29/2014
NC	There is no evidence of the process flow for the energy review as detailed in energy manual	ON-HOLD		01/18/2014

A blank nonconformity opens in a new window: the status bar (label 0) states this NCO as "Draft".



The info that must be written in the blank form is:

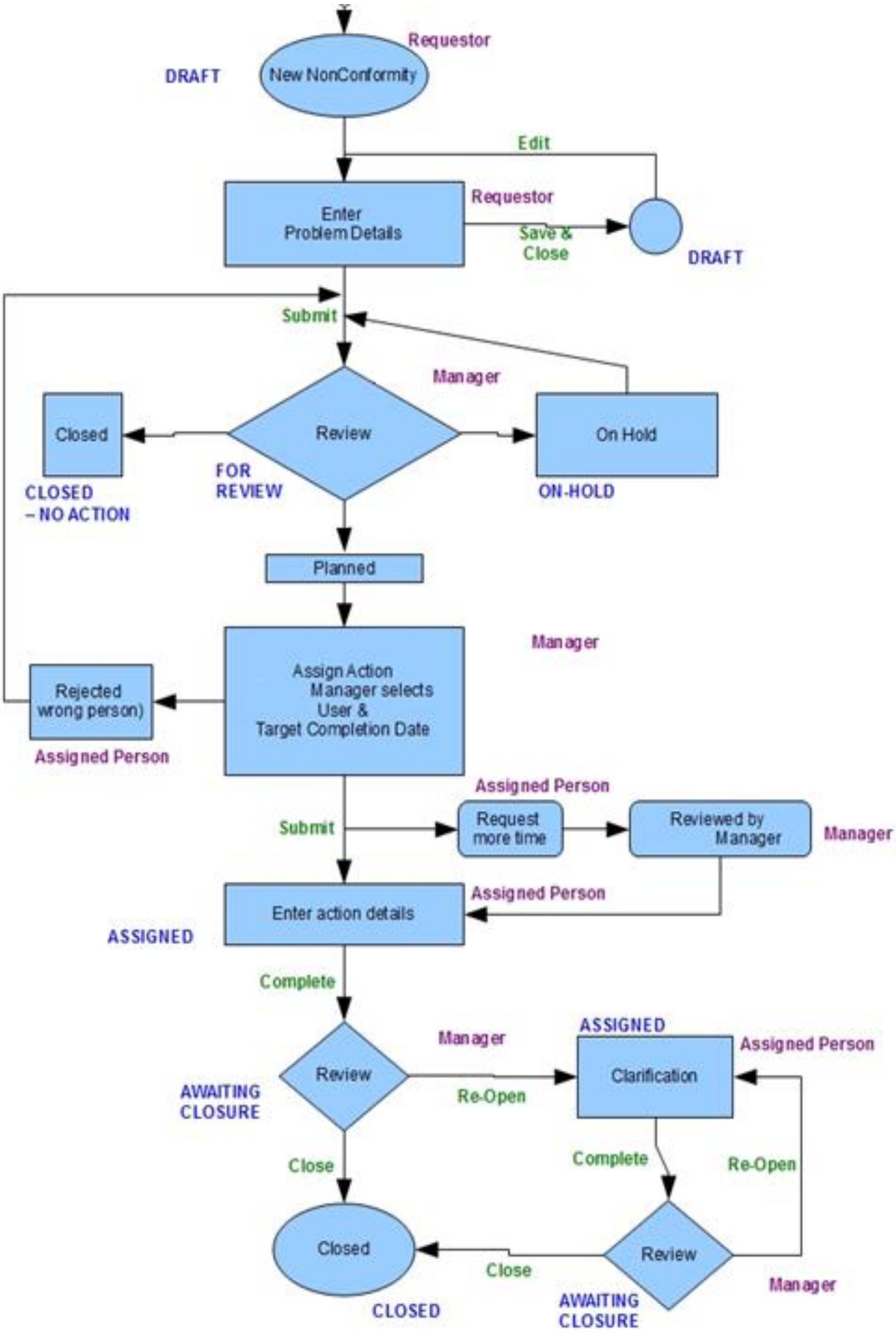
1. **Title –** type in the title of the idea. This field is mandatory
2. **Reference –** this field is automatically filled by the system after saving or submitting the form
3. **Location –** to be selected from the list of predefined location in the drop-down menu which opens after clicking
4. **Sub-Location –** to be selected from the list (if available) of predefined sub-location in the drop-down menu which opens after clicking
5. **Type –** select the applicable type of nonconformity from the drop-down menu which opens after clicking
6. **Category –** select the category from the drop-down menu which opens after clicking
7. **Sub-Category –** this field is activated when the previous is chosen; select the sub-category from the drop-down menu which opens after clicking
8. **Priority –** select the priority from the list in the drop-down menu which opens after clicking
9. **Details –** enter any additional information
10. **Attachments –** by clicking on the "Attach Files" button, it will be possible to select files to be attached from the floating windows which opens

9.3 Reviewing a Nonconformity (Status = FOR REVIEW)

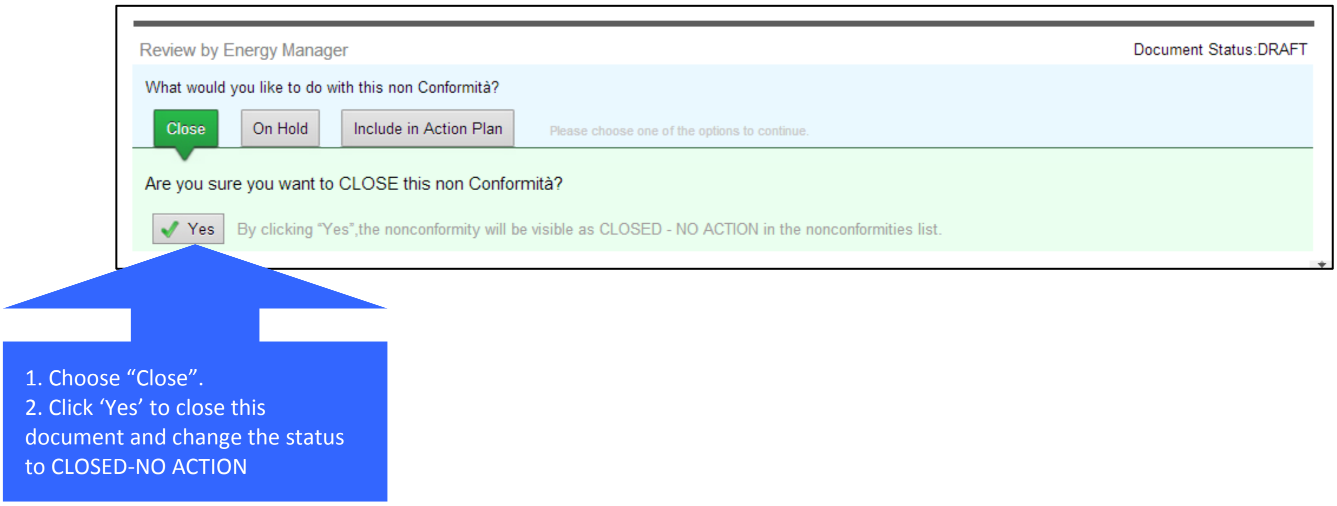
9.3.1 Nonconformities workflow

The Nonconformity workflow allows the Audit team to perform the following actions:

1) Create: nonconformities, corrections, corrective actions and preventive actions related to audits
2) Make decisions if action is necessary
3) Assign and manage actions through to completion

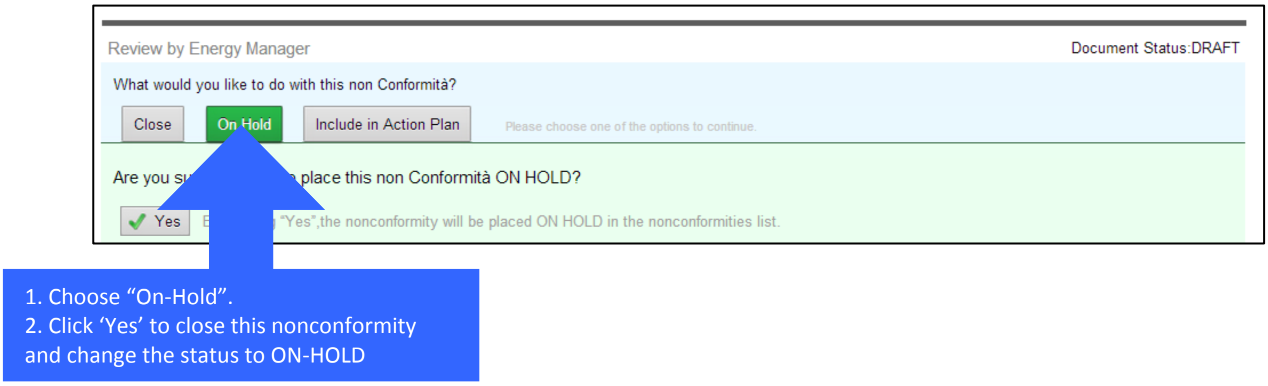


- **Option 1: Close – No Action**



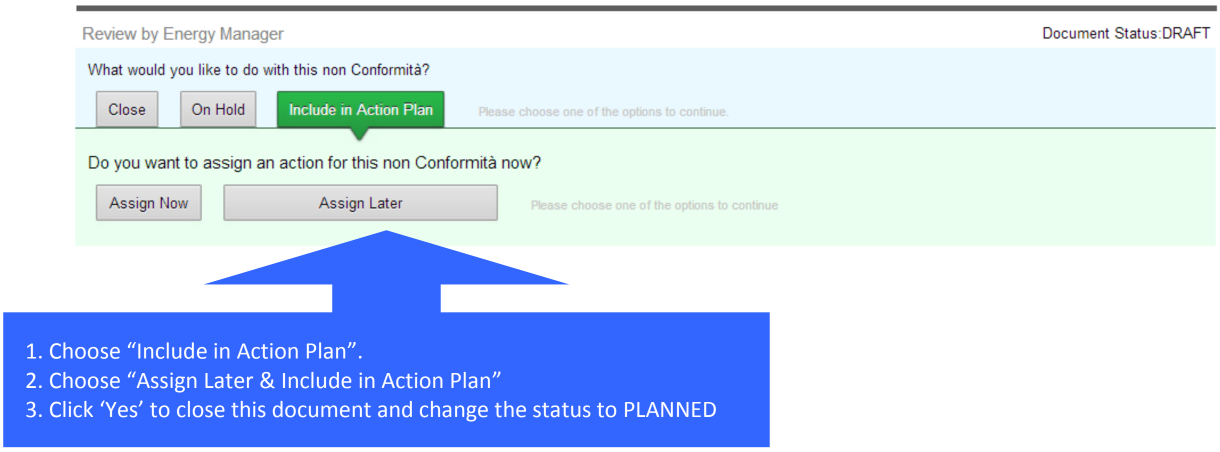
By clicking "Yes", the nonconformity will be visible as *CLOSED - NO ACTION* in the nonconformities list.

- **Option 2: On Hold**



By clicking "Yes", the nonconformity will be placed *ON HOLD* in the nonconformities list.

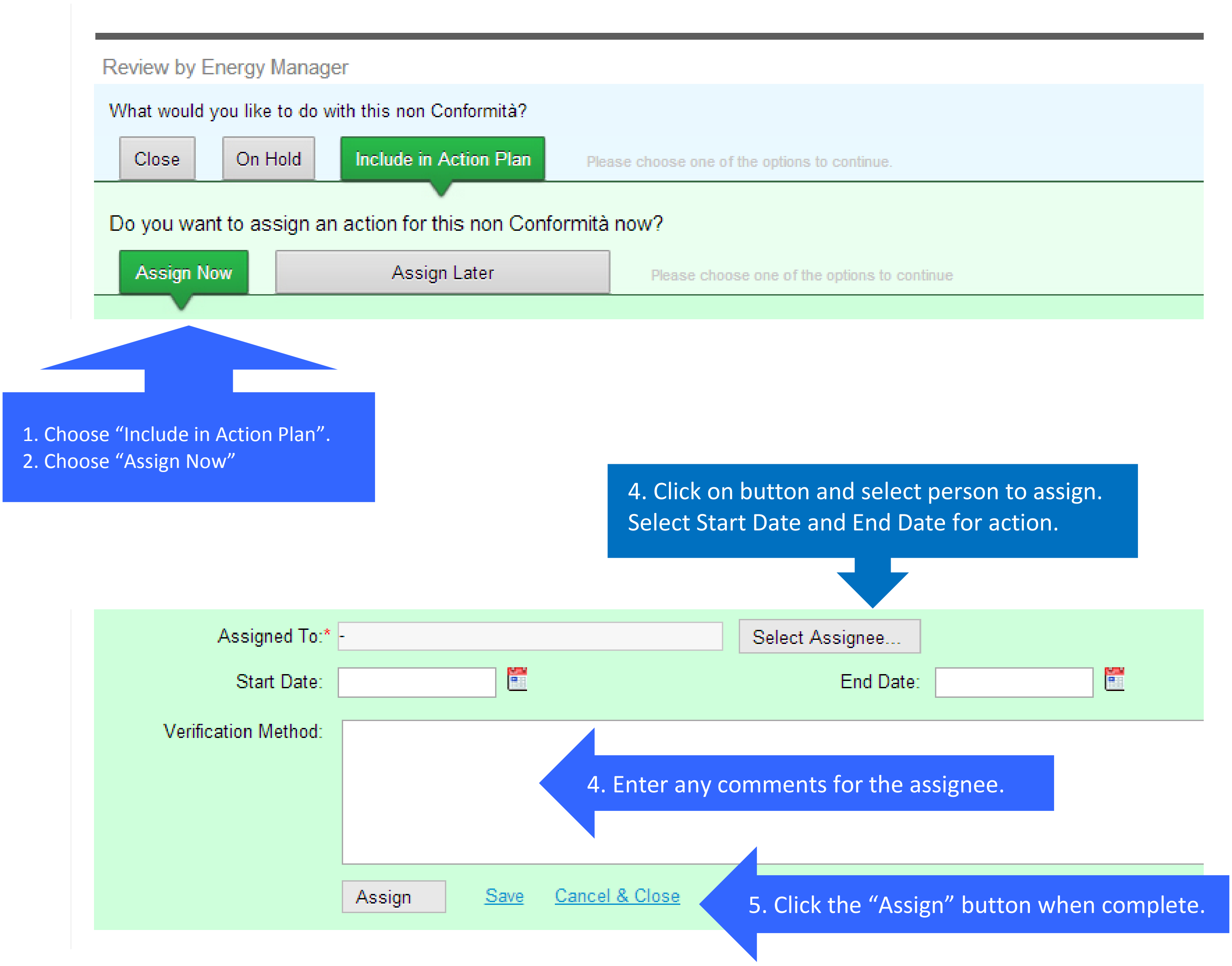
- Option 3: **Include in Action Plan** (but not ready to assign)



Select this option to include the nonconformity in the action plan. It is possible to assign it directly (item **Error! Reference source not found.**) or leave it as pending for a further assignment (**Error! Reference source not found.**)

9.3.2 Assigning a Nonconformity

- Option 3: **Include in Action Plan** (and assign to person)

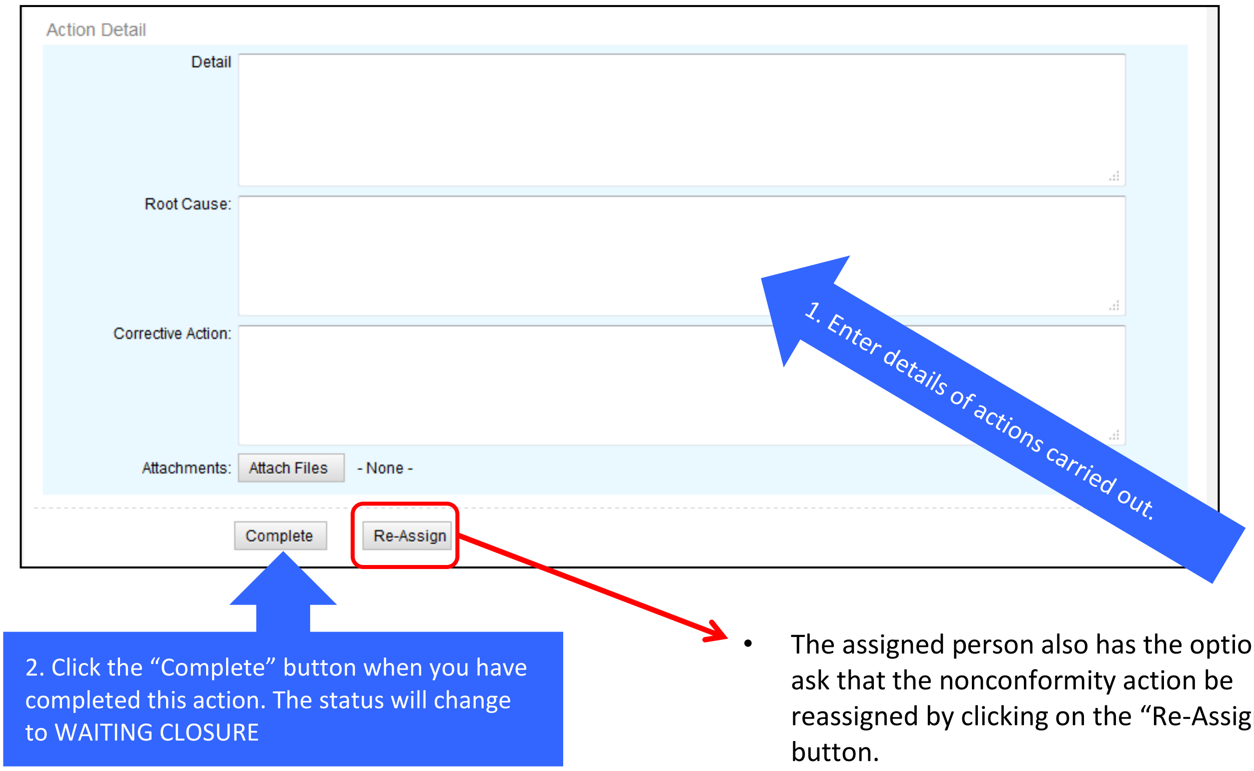


Assigned To – by clicking on the "Select Assignee" command, a window with the list of eligible person opens; select the assignee/assignees from this list
Start Date – select the start date by clicking on the calendar button on the right
End Date – select the end date by clicking on the calendar button on the right
Verification Method – enter details about the verification method by filling the blank field
Assign – this command assigns the action; the energy manager is notified that a new opportunity has been suggested
Save – use this command to save data inserted in the form
Cancel & Close – selecting this command the action will be closed and canceled

NOTE: Nonconformity can also be created from the Audit and Meeting module using the "New Nonconformity" command in the ACTION subgroup

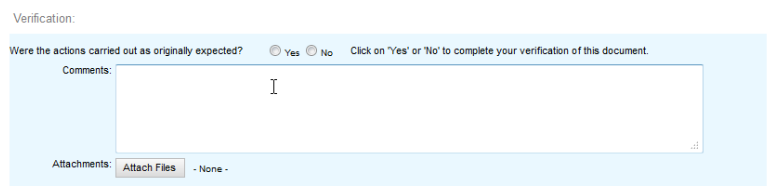
9.4 Responding to a Nonconformity (Status = ASSIGNED)

- When an action is assigned, the assigned person receives an automatic email with a link to the action.
- A new Action Details section appears on the action form for the assigned person to complete.



- The assigned person also has the option to ask that the nonconformity action be reassigned by clicking on the "Re-Assign" button.
- The Energy Manager/Auditor gets an email telling them to reassign this action.
- The status goes back to FOR REVIEW

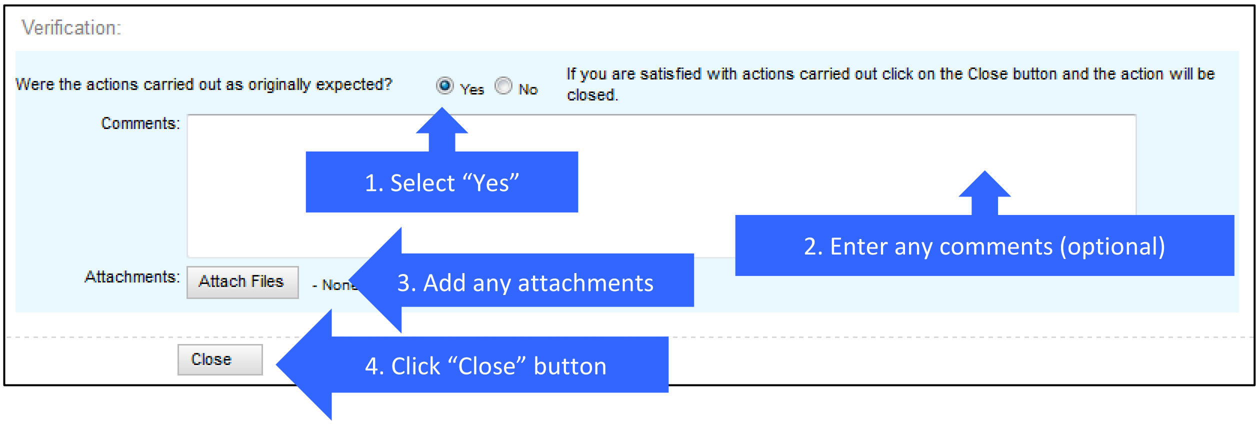
9.5 Approving a Nonconformity (Status = AWAITING CLOSURE)



- The responsible Manager/Auditor will receive an automatic email when the validation of the savings and payback step has been completed by the assigned person.
- The workflow now allows the Manager/Auditor to decide one of the 2 following options:
  a) Close – The action has been completed as originally expected.
  b) Re-Open – The Manager/Auditor requires further information or clarification on the actions carried out or the savings and payback calculations

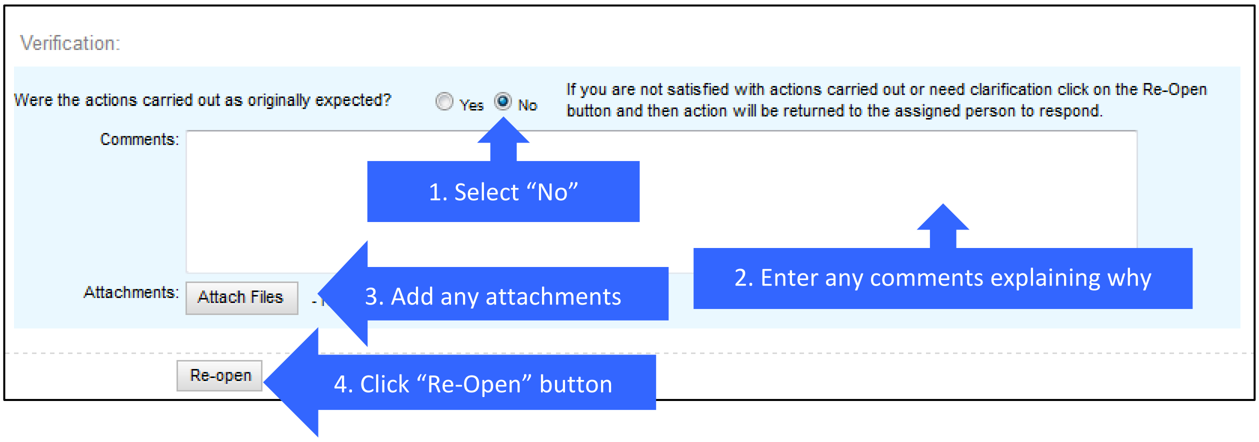
- Option A: **Approve and Close (System Manager/Lead Auditor)**

This will close and notify the assign person that the action has been approved and closed by the responsible Manager/Auditor.



- Option B: **No – Re-open the action**

The action will be assigned back to the assigned person.



10 Meetings

10.1 Overview

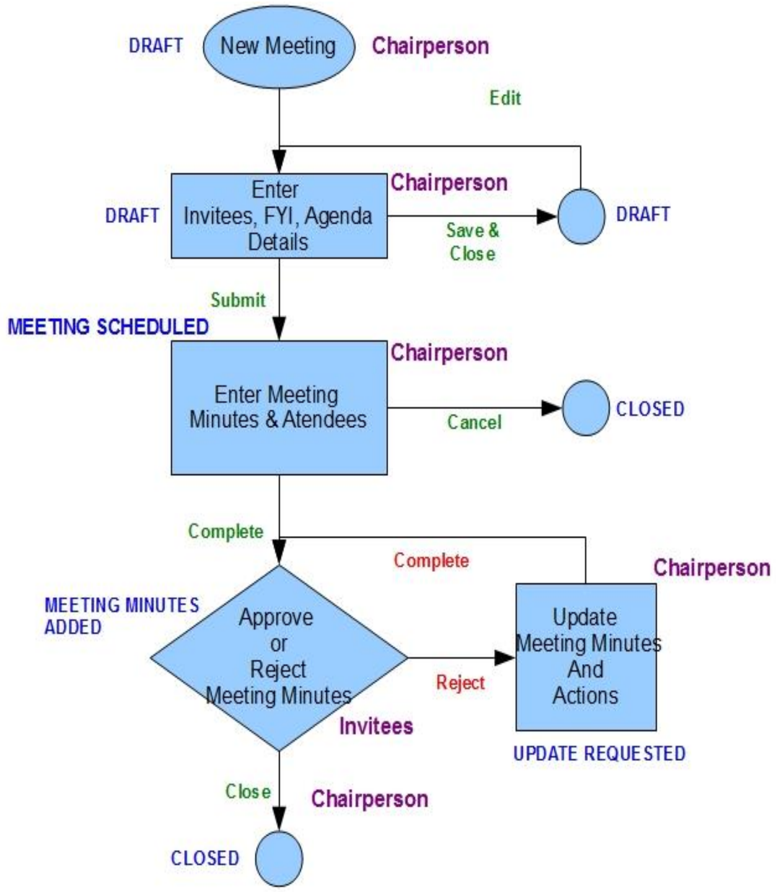
Meetings function as an indicator of organization's compliance with regulatory and energy standard requirements: they ensure every part involved is always up-to-date on what is happening, what actions need to be carried out and how effective actions have been implemented. The Meetings module can be used alike by:

- managers
- members of the energy team
- all users of Enerit software

10.2 Meeting Workflow

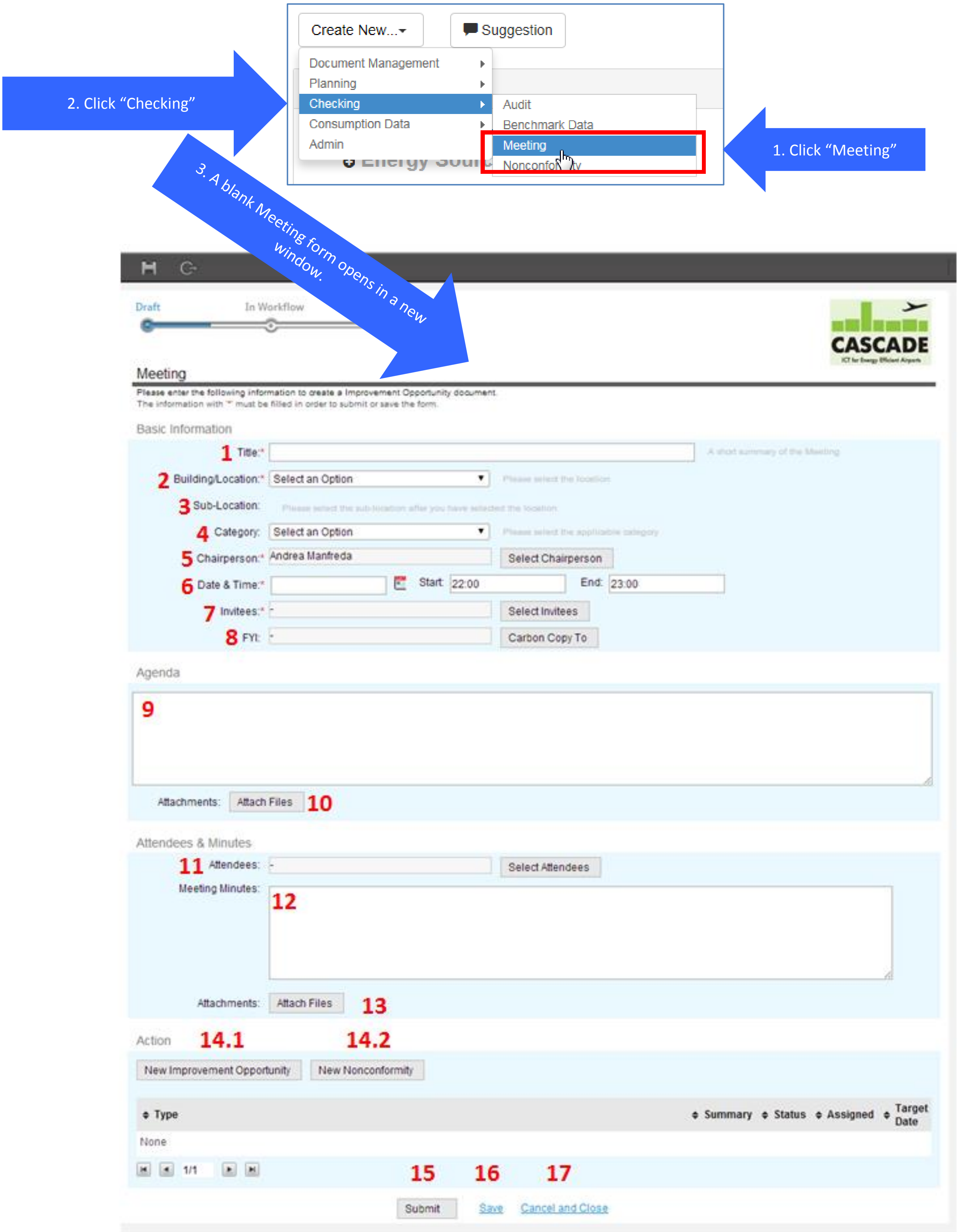
The Meeting workflow allows the energy team to:

- Create, plan and schedule Meetings
- Invite the energy team along with details of the meeting schedule, time and location
- Record Meeting minutes and generate actions
- Generate both improvement opportunities and nonconformities
- Keeps a full record of all Management Review inputs and outputs



10.3 Creating and Scheduling a Meeting (Status = DRAFT)

Create a Meeting by clicking on “Create New” → “Checking” → “Meeting” as shown in the figures below.



Fields are divided into four sub-categories. The first two items must be completed during the first editing of the Meeting; the second and the third must be filled in at the meeting or after the meeting:

- BASIC INFORMATION
- AGENDA
- ATTENDEES & MINUTES
- ACTION

Basic Information

1. **Title –** insert the title (a short description) of the Meeting
2. **Location –** select the location of the meeting from drop-down menu
3. **Sub-Location –** select the sub-location related to the location from the drop-down menu
4. **Category –** select the category from the ones listed in the drop-down menu
5. **Chairperson –** by clicking on the “Select Chairperson” button a window with the list of selectable chairperson opens
6. **Date & Time –** set date using the calendar button on the right, then select start and end time by filling the correspondent fields
7. **Invitees –** by clicking on the “Select Invitees” button a window with the list of selectable invitees opens
8. **FYI –** by clicking on the “Carbon Copy to” button a window with the list of selectable people

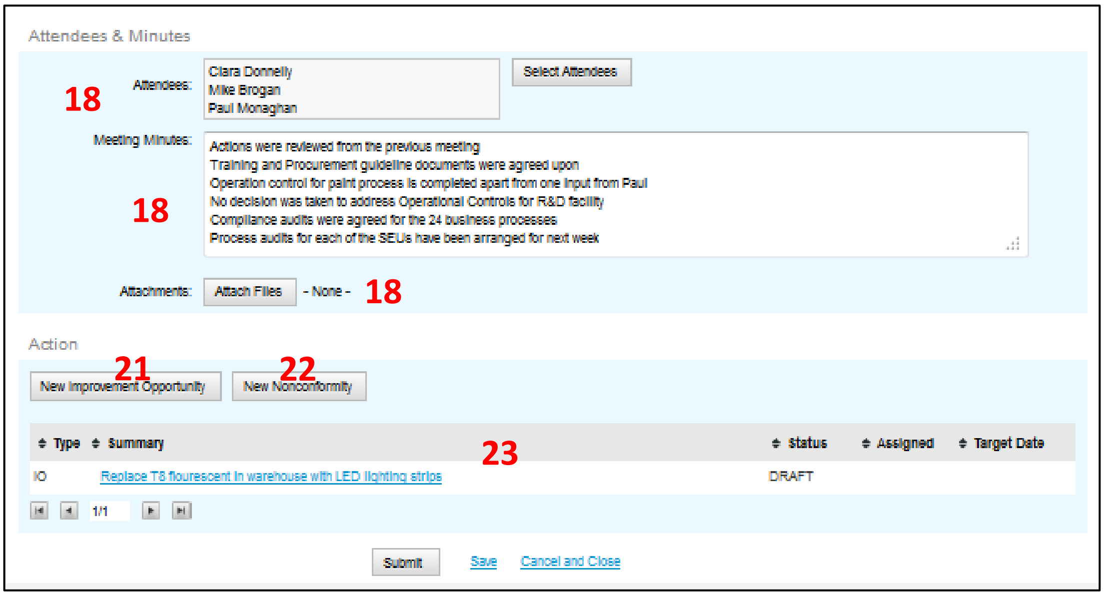
Agenda

Set the agenda filling the information in the blank field.

9. **Agenda –** Enter the agenda for the meeting
10. **Attachments –** by clicking on this button, a floating window opens: clicking on “Choose file” will be possible to choose the attachment. Then, clicking on the button with the “clip” picture, the file will be attached to the document

15. **Submit –** by clicking on submit, Meeting information will be send to the people selected in the Meeting form
16. **Save –** by clicking on “Save” at any moment, the form will be saved with all the info contained; then, editor will be able to continue editing
17. **Cancel and Close –** selecting this option all the unsaved information added will be lost

10.4 Completing a Meeting (Status = SCHEDULED)



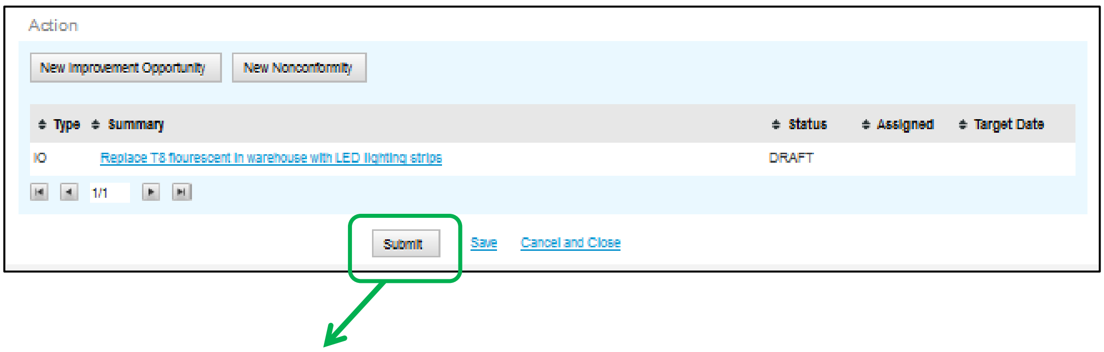
Attendees & Minutes

18. **Attendees –** by clicking on the "Select Attendees" button a window with the list of selectable invitees opens
19. **Minutes –** Minutes can be inserted as plain text in the field or, even better, they can be forwarded as attachment…
20. **Attachments –** by clicking on the "Attach Files" button of this second Attachments field a floating window opens: clicking on "Choose file" will be possible to choose the attachment file which contains the Minutes. Then, clicking on the button with the "clip" picture, the file will be attached to the document

Action

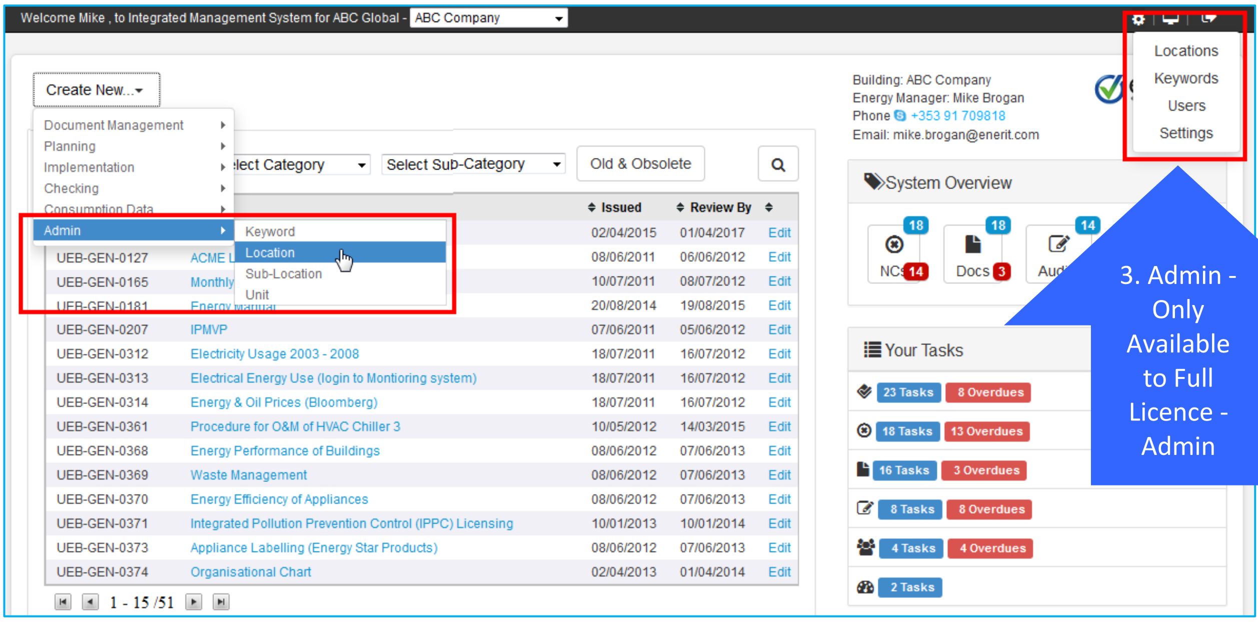
If the Meeting brought to a decision about a new Action, by clicking on:

21. **New Improvement Opportunity –** by clicking on this button the form for a new improvement opportunity opens. See paragraph 0, 0 and 5.2.2 for details.
22. **New Nonconformity –** by clicking on this button the form for a new nonconformity opens. See Chapter 9 for details
23. **Type \ Summary \ Status \ Assigned \ Target Date –** this is a summary list of all the actions created from this Audit; the Summary title for each action can be clicked to open the related action in a new window



When you are satisfied that you have completed the Meeting minutes and created the actions, click on the "Submit" button (see figure above). This will close and finalise the meeting details and notify all attendees by email.

11 Administration

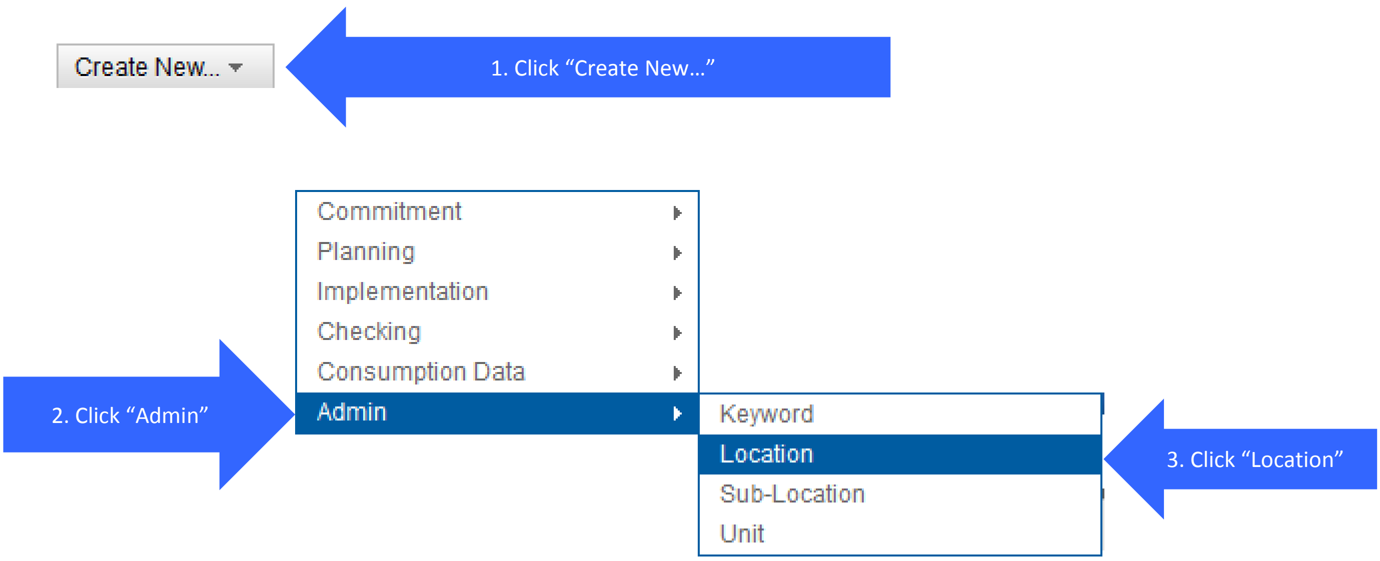


11.1 Locations

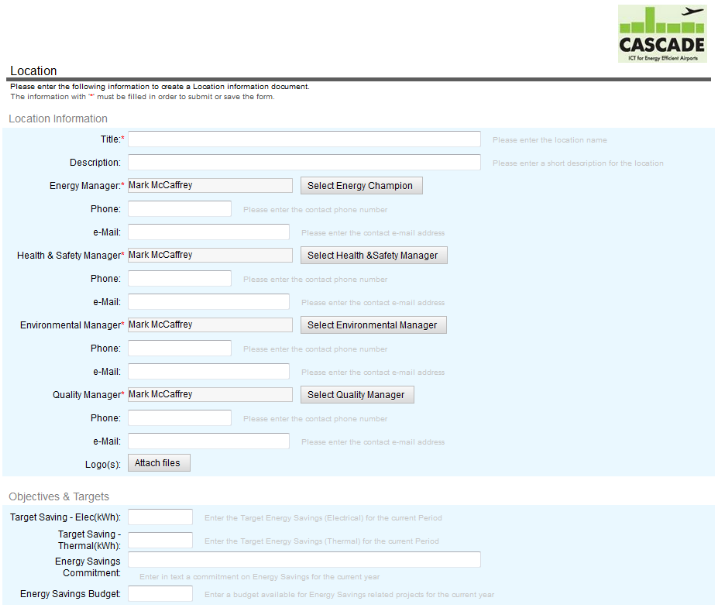
Locations are typically at the level of the site address. You can create as many locations as you require.

To create new locations carry out the following steps:

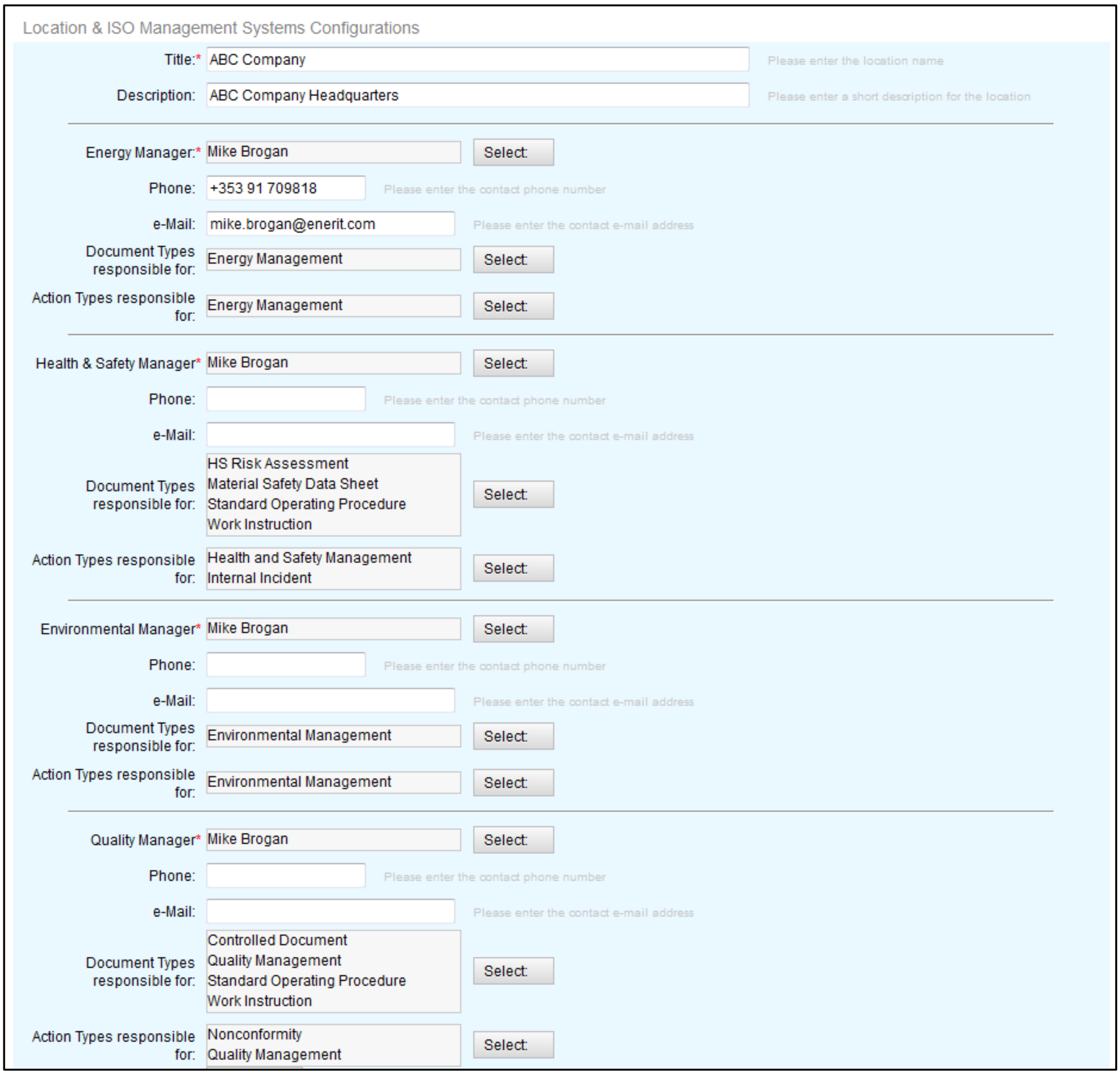
(Note: If a new location is added to the system and you want a user to have access to this location, then you must add this new location to the Users settings described in the User section below.)



4. A blank Location form opens in a new window.

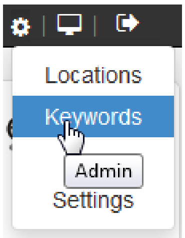


11.1.1 Location Information & ISO Management Systems Configurations:

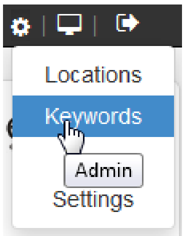


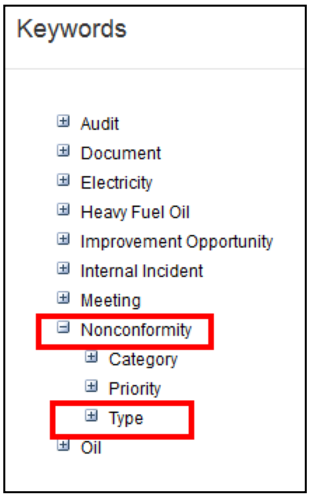
Enter the following details:

- **Title**: Enter the title of the Location. This field is mandatory.
- **Description**: Enter a description of the location.
- **Energy Manager/Health & Safety Manager/Environmental Manager/Quality Manager**:
    - Click "**Select**" and choose the names for each of the above managers for this location.
    - Enter **Phone** and **Email** details for these functions.
- **Document Types responsible for**: Select the document types that are the responsibility of this manager. This defines the person that new documents will be submitted to for initial review and who can issue these types of documents. The available list is defined in the DocumentType keyword settings for the Document Management module (see related training material.)

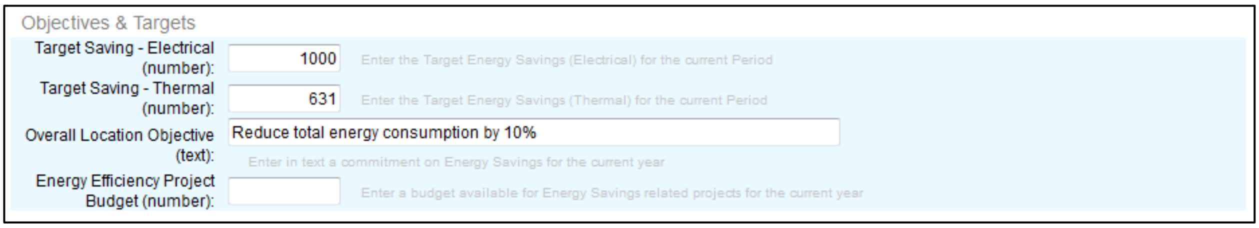


- **Action Types responsible for**: Select the nonconformities that are the responsibility of this manager. This defines the person that nonconformities will be submitted to for final approval for these Types of Nonconformities. The Type list is defined in the Keyword settings for the Nonconformity Management module (see related training material.)





11.1.2 Objectives & Targets

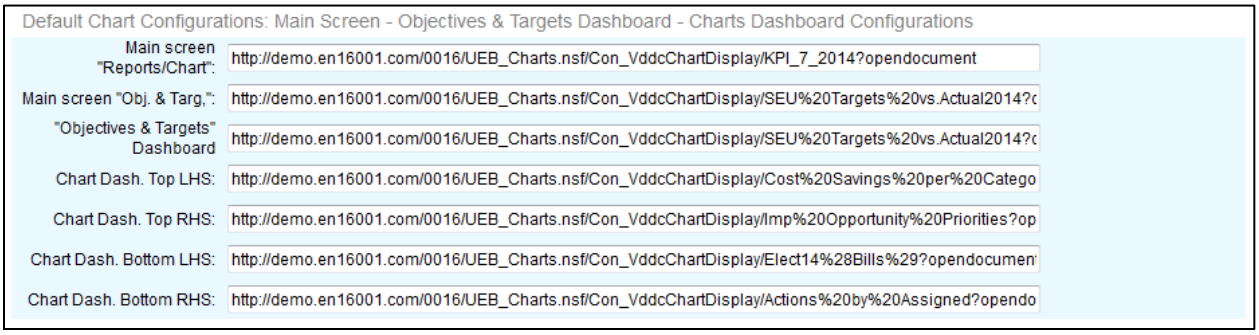


Enter the following details:

- **Target Savings – Electrical (number)**: Enter the overall electrical energy savings target for this location. Enter in the default units that you have specified in your System Settings document (see later slides.) This is then displayed in the **Objectives & Targets** Dashboard. This field is a number field.
- **Target Savings – Thermal (number)**: Enter the overall thermal energy savings target for this location. Enter in the default units that you have specified in your System Settings document (see later slides.) This is then displayed in the **Objectives & Targets** dashboard. This field is a number field
- **Overall Location Objective:** Enter statement outlining your objectives. This is a text field. This will be displayed in the **Objectives & Targets** dashboard.
- **Energy Efficiency Project Budget (number):** Enter the budget that you have allocated for energy efficiency projects. (This feature has not been released yet. Please contact Enerit support if you are interested in finding out more about this feature.)

The values entered appear in the following Objectives & Targets view (see Chapter 7 for details.)

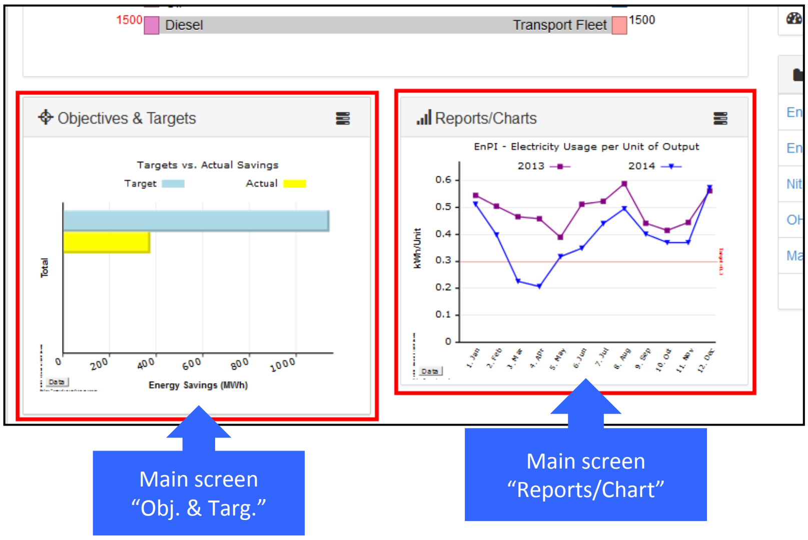
11.1.3 Default Chart Configurations



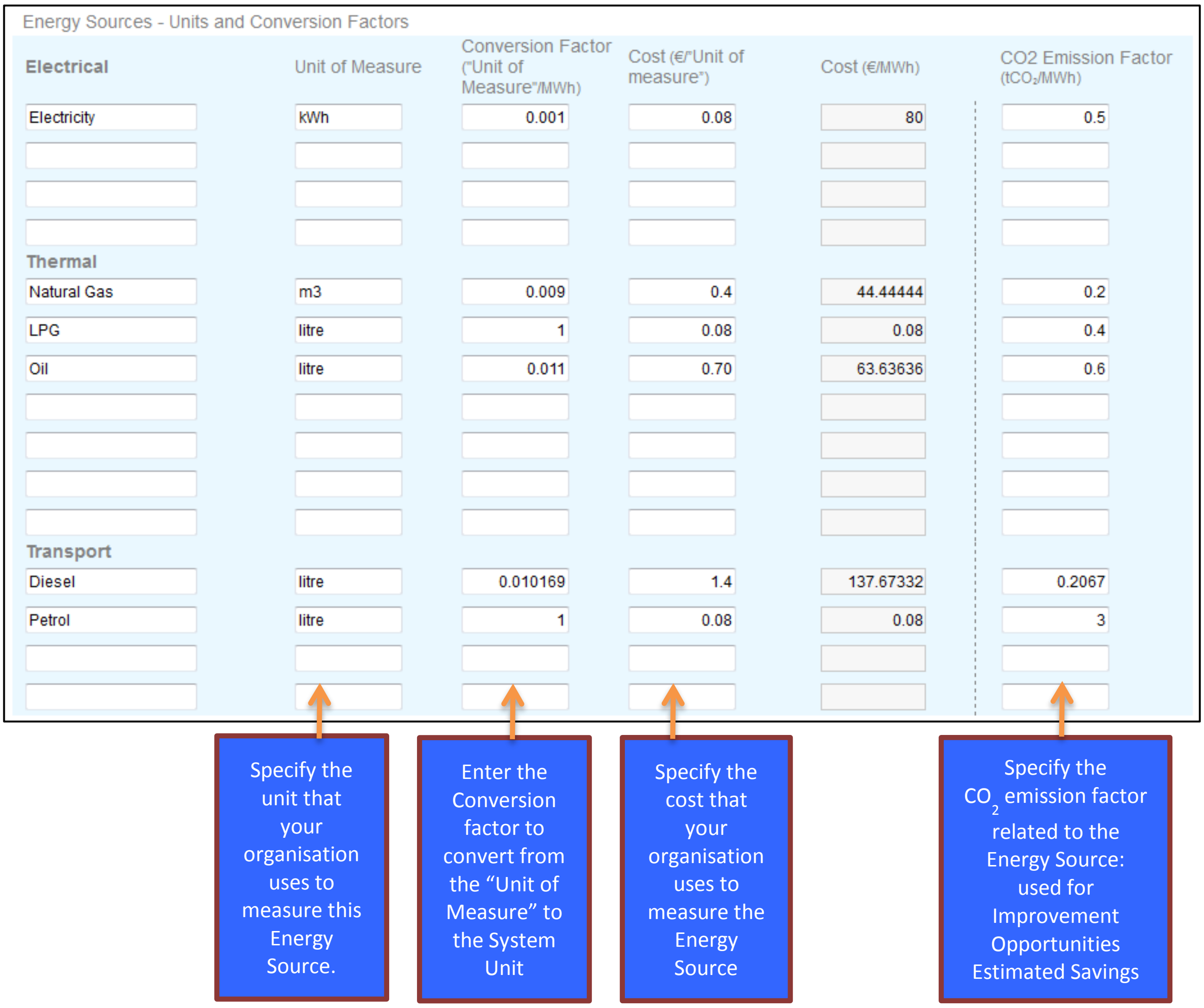
Default Chart Configurations: Main Screen - Objectives & Targets Dashboard - Charts Dashboard Configurations

Main screen "Reports/Chart":	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/KPI_7_2014?opendocument
Main screen "Obj. & Targ,":	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/SEU%20Targets%20vs.Actual2014?c
"Objectives & Targets" Dashboard	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/SEU%20Targets%20vs.Actual2014?c
Chart Dash. Top LHS:	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/Cost%20Savings%20per%20Catego
Chart Dash. Top RHS:	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/Imp%20Opportunity%20Priorities?op
Chart Dash. Bottom LHS:	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/Elect14%28Bills%29?opendocumen
Chart Dash. Bottom RHS:	http://demo.en16001.com/0016/UEB_Charts.nsf/Con_VddcChartDisplay/Actions%20by%20Assigned?opendo

- Enter the URL for the chart in the appropriate box that you want to appear in the position described in the images below

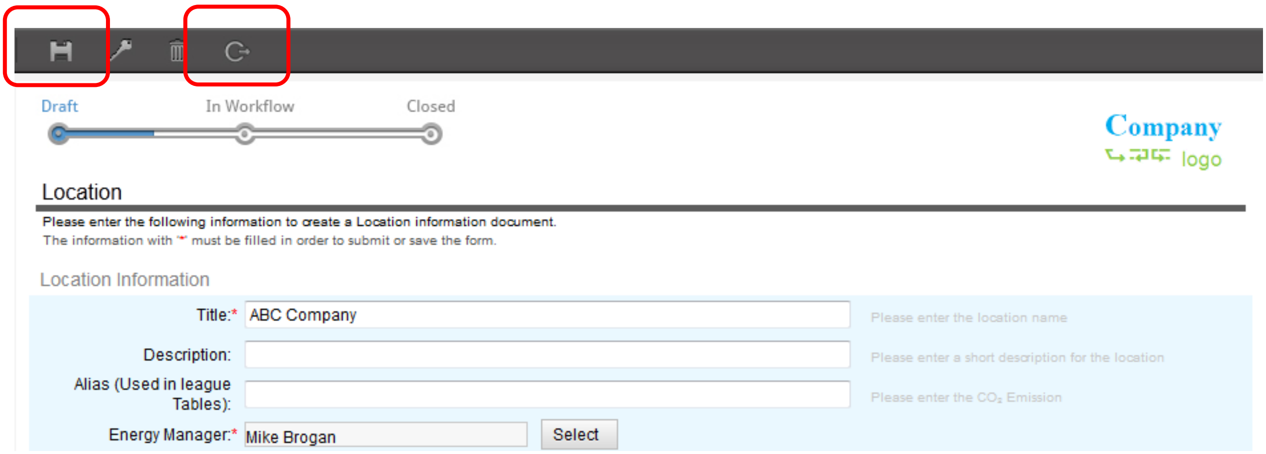


11.1.4 Energy Sources – Units and Conversion Factors


Energy Sources - Units and Conversion Factors

Electrical	Unit of Measure	Conversion Factor ("Unit of Measure"/MWh)	Cost (€/"Unit of measure")	Cost (€/MWh)	CO2 Emission Factor (tCO_2/MWh)
Electricity	kWh	0.001	0.08	80	0.5
Thermal					
Natural Gas	m3	0.009	0.4	44.44444	0.2
LPG	litre	1	0.08	0.08	0.4
Oil	litre	0.011	0.70	63.63636	0.6
Transport					
Diesel	litre	0.010169	1.4	137.67332	0.2067
Petrol	litre	1	0.08	0.08	3

11.1.5 Saving your New Location

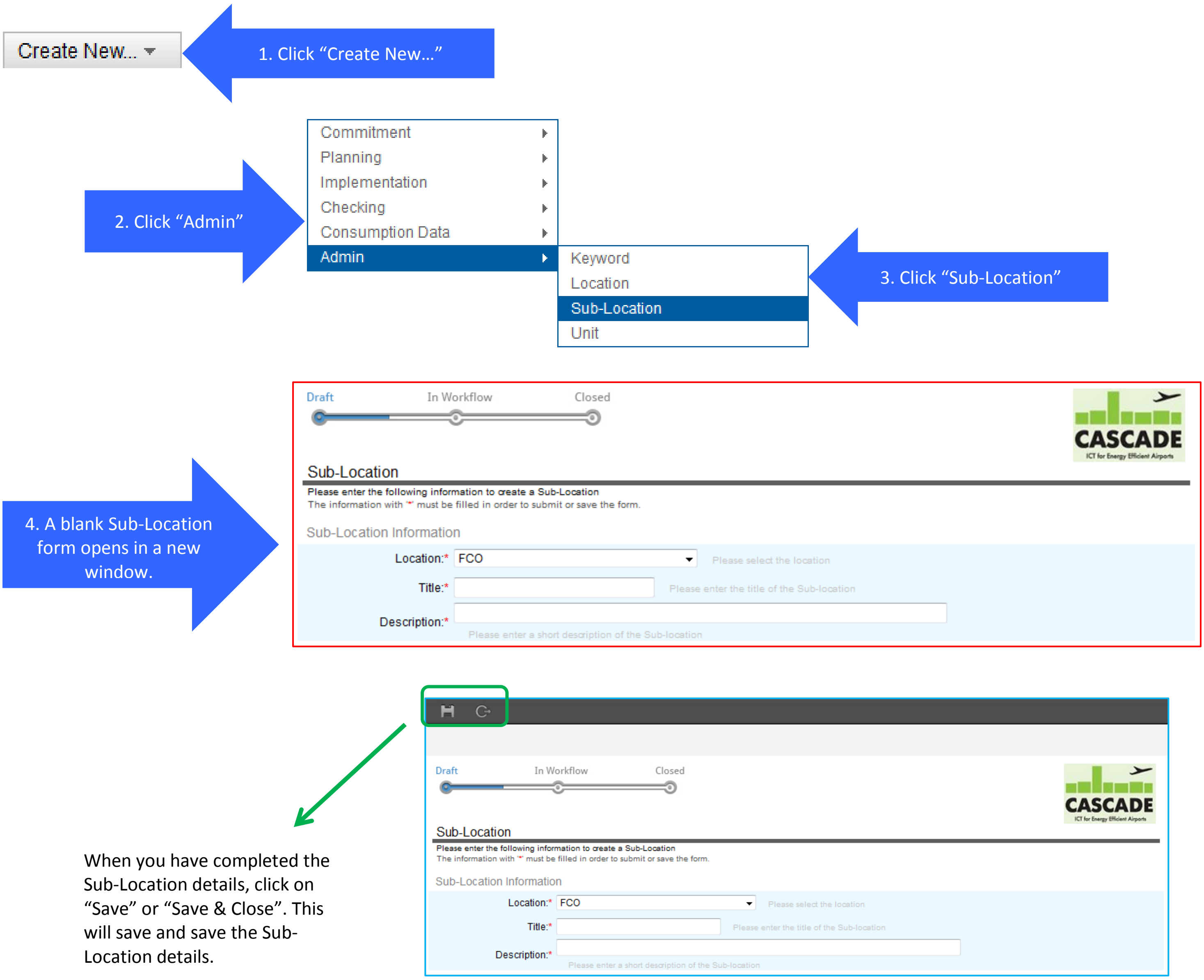


If you are satisfied with the Location details, click on "Save" or "Save & Close" (highlighted in red box above). This will close and save the Location details.

11.1.6 Creating Sub-Locations

Sub-Locations are at the level of the buildings within a site e.g. “Building 1”

Creating a Sub-Location for a Location allows you to further define areas in your organisation and to help sort actions and documents.



Data Entry:

Sub-Location Information:

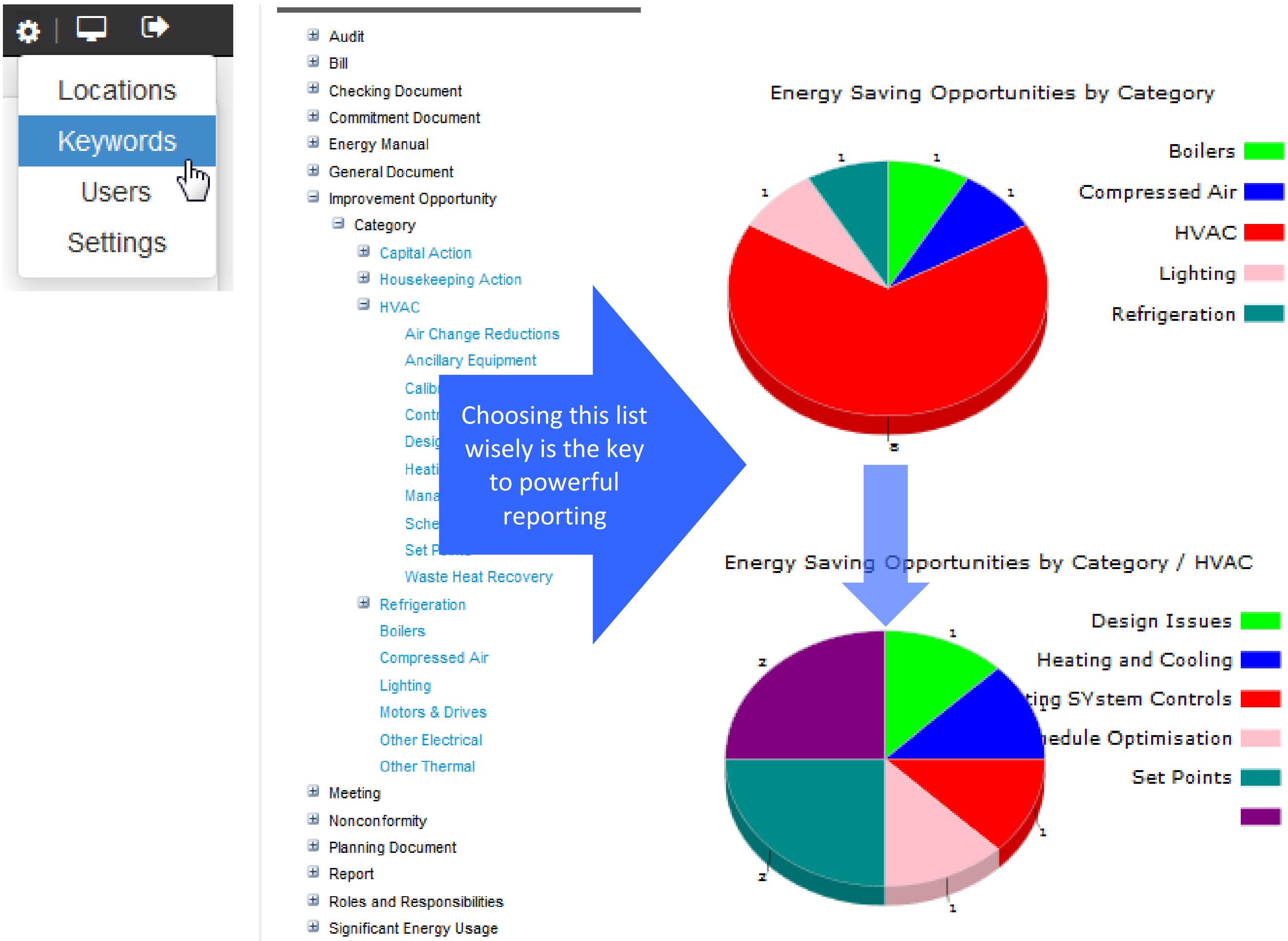
- **Location**: Choose which location it will apply to. This field is mandatory.
- **Title:** Enter the title of the Sub-Location e.g. “Building 1”
- **Description**: Enter a description of the sub-location e.g. boundary information.

NOTE: When finished creating a Sub-Location click on Save in the top left corner and then close the window. You’re new Sub-Location will then appear on all new documents you create in the software.

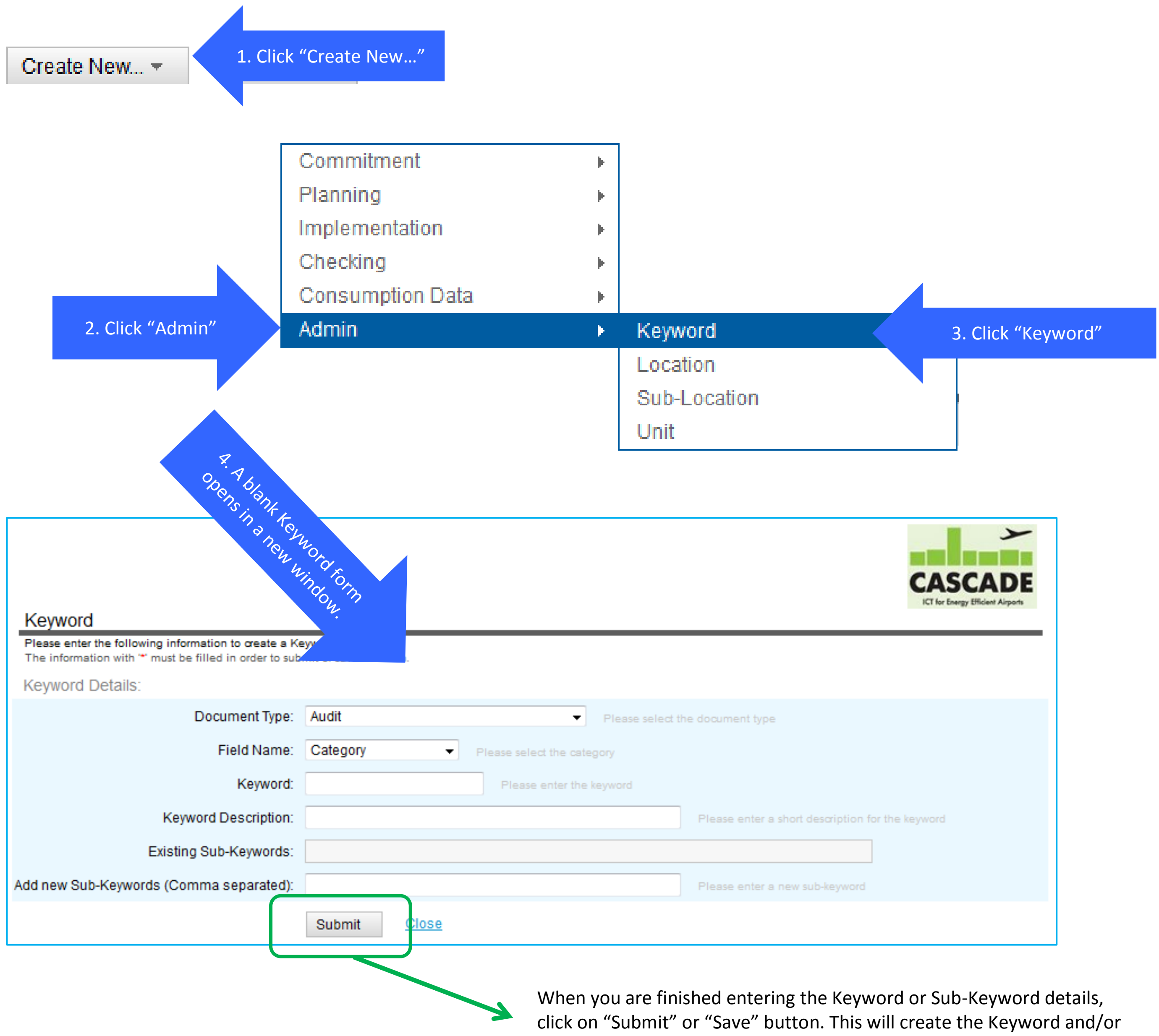
11.2 Keywords

Keywords help you customise the Enerit software to work for your organisation, to choose words and categories that have real meaning for your organisation.

For each type of item/document you can create in the Enerit software there are configurable keywords on each to help sort and categorise information. The following figure shows how the keywords work in the charts.



11.2.1 Creating New Keywords



When you are finished entering the Keyword or Sub-Keyword details, click on "Submit" or "Save" button. This will create the Keyword and/or Sub-Keyword. You can view the Keywords in The Administration view

Keyword Details

- **Document Type**: Choose the document type you want to create a keyword for.
- **Field Name:** Enter the title of the Sub-Location e.g. "Building 1"
- **Keyword**: Enter a description of the sub-location e.g. boundary information.
- **Keyword Description:** Enter a description of the sub-location e.g. boundary information.
- **Sub-Keywords**: Add new sub-keywords separated by a comma

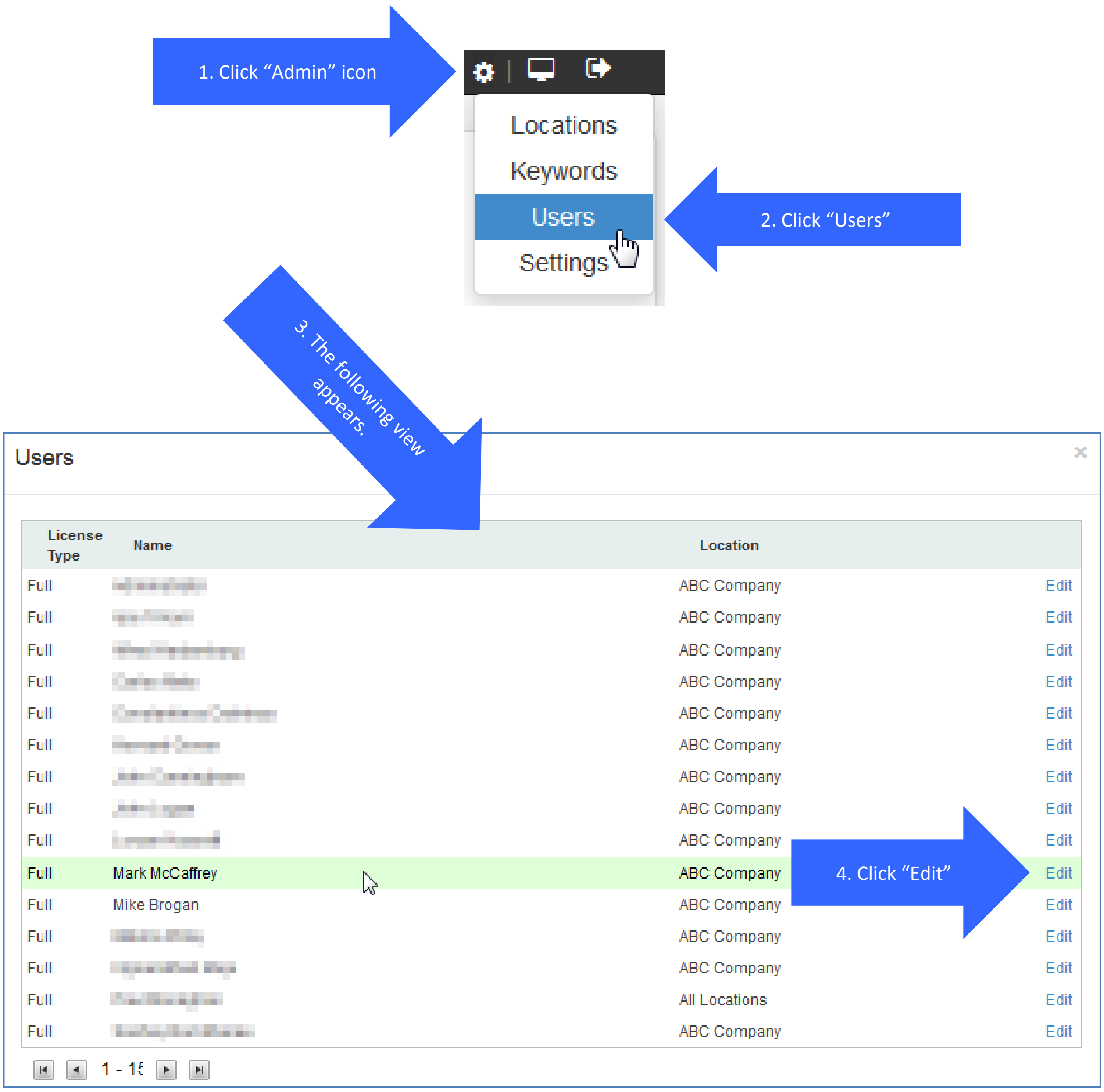
NOTE: When finished creating a Keyword or Sub-Keyword click on Save in the top left corner and then close the window. You're new Keyword or Sub-Keyword will then appear in the specified document type when you create a new one in the software.

11.3 Users

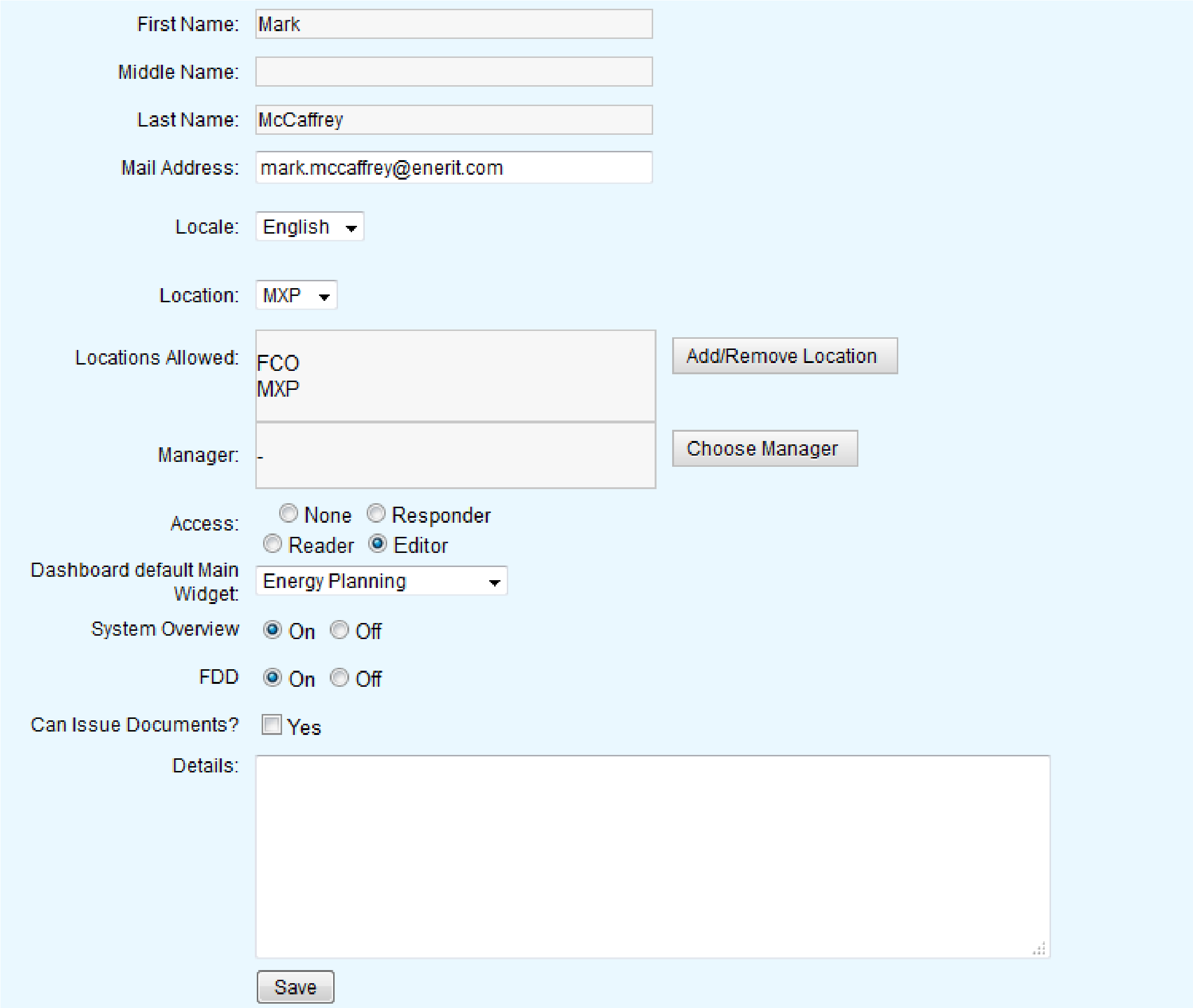
All Users are initially registered to use the system by Enerit. Contact Enerit Help Desk for assistance (help_desk@enerit.com)

Updating User Settings

When users are registered, you can update their configurations by access the list of users through the Users in the Administration section of the software (see following screenshots.)



User Information



(Note: The Save button may not be visible until you scroll down the page in the window. If you do not click the Save button your changes will not be saved.)

First Name: Users first name (set-up by Enerit when user registered.) Not editable.

Middle Name: Users middle name (set-up by Enerit when user registered.) Not editable.

Last Name: Users last name (set-up by Enerit when user registered.) Not editable.

Mail Address: Enter the email address for the user.

Locale: Select the language settings for the user (e.g. Italian or English).

Location: Select the default location for the user. This is the location that is displayed on the dashboard when the user first logs onto the system. Note: If user changes the location using the location list in the Dashboard, it will remember this setting the next time they log onto the system.

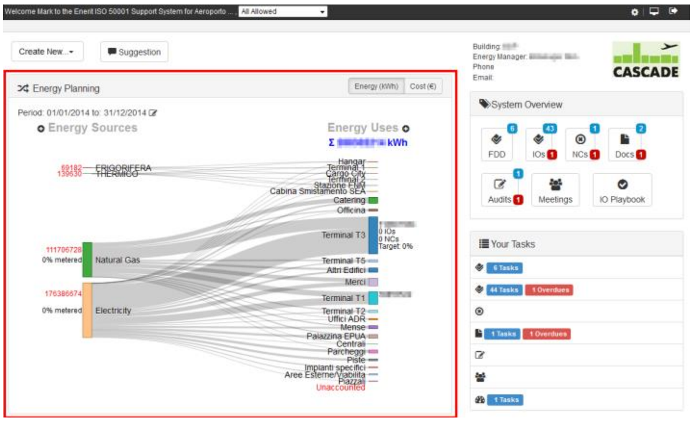
Locations Allowed: Use the “Add/Remove Location” button to add the locations that this user is allowed to access. Note: If a new location is added to the system and you want a user to have access to this location, then you must add this new location here.

Manager: This is used for escalation of actions. If you specify a manager here any tasks that become overdue will send an escalation notification to the users manager.

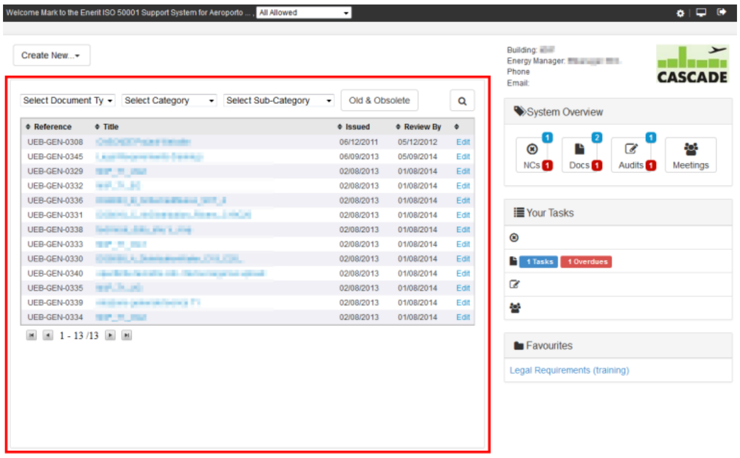
Access: This defines the type of access that you want the use to have. Only users with the Editor access are allowed to see the “Create New...” button on the dashboard.

Dashboard default Main Widget: This defines what appears in the main central area of the dashboard. The options are:

- <u>Energy Planning</u>: When this is selected the Energy Flow Assessor diagram will appear as follows:

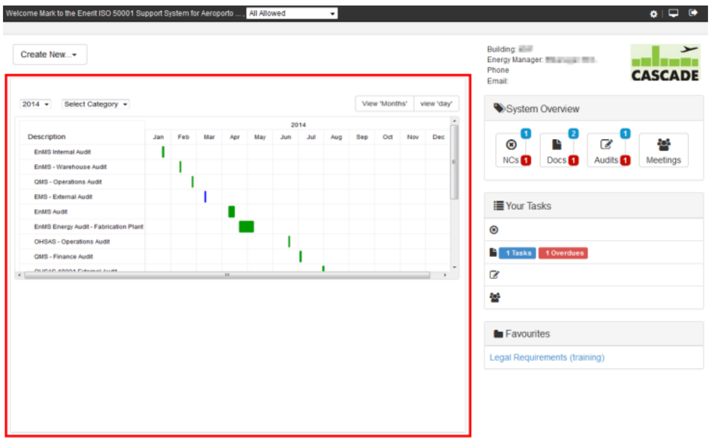


- <u>Documents</u>: If this is selected then the Document Management view appears as follows:



–

- <u>Audits</u>: If this is selected then the Audit Management view appears as follows:



System Overview: Select “On” if you want the user to be able to see the “System Overview” area of the dashboard.

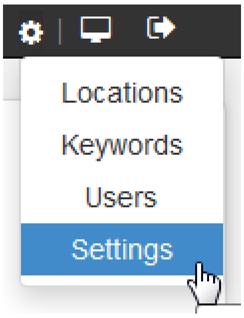
Can Issue Documents?: Tick "Yes" if this user is allowed to issue documents. This will control the "Issue" section in the document creation form in the Document Management functionality (see section 7.3.5 on issuing a document.)

Details: This is a free text box to enter any other details about this user.

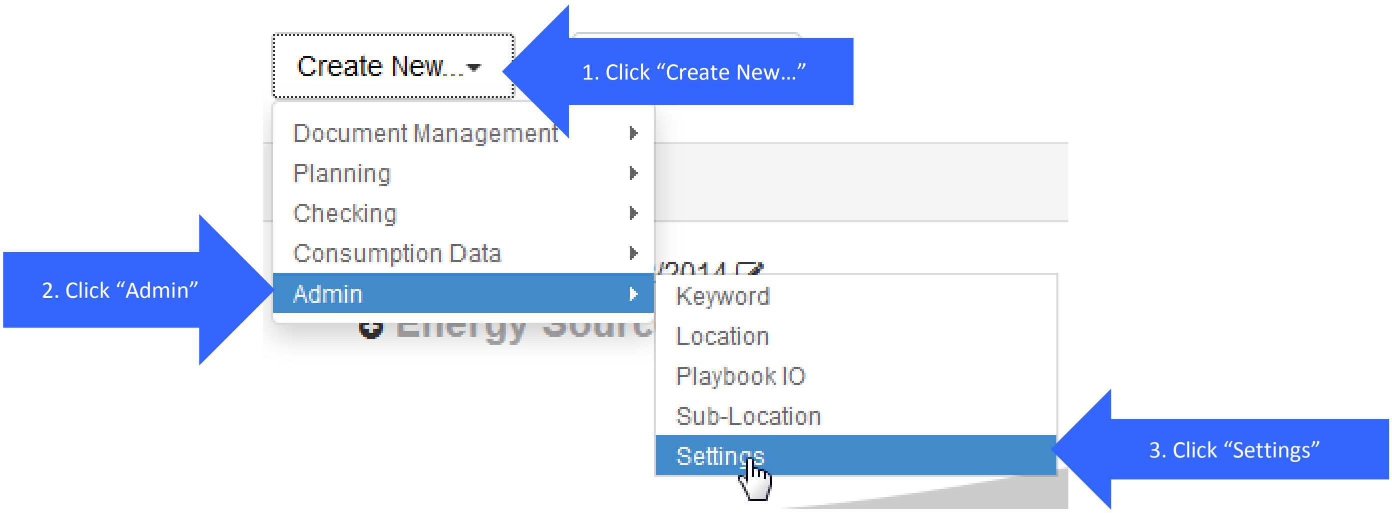
(**Save**): Click on the Save button to save your changes.

11.4 Settings

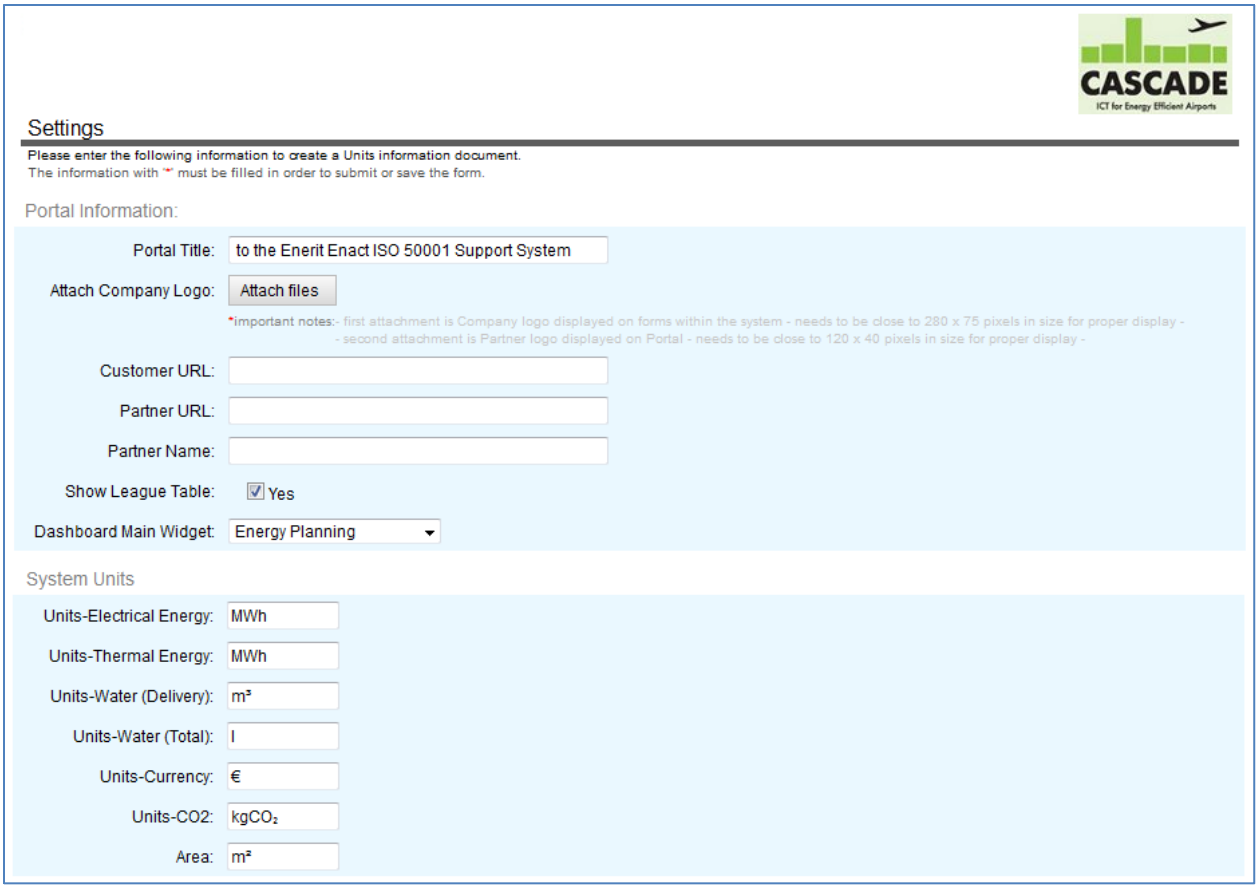
This section describes how to configure the global setting for the software through the "Settings".



A new "Settings" document can be created from the "Create New… > Admin > Units" option.



NOTES: Only one Settings document is required in the system and is configured with default settings when software is first installed.



Portal Information:

- **Portal Title**: Enter the information your organisation will see when you log in to the software (at the top of the screen).
- **Attach company logo**: Add a company logo that appears in for top RHS of all documents.
- **Customer URL**: Enter the URL for your company website. It will be linked to your company logo.
- **Partner URL:** (not currently available)
- **Partner Name:** Enter the partner name, if applicable.
- **Show League Tables:** (not currently available).

System Units:

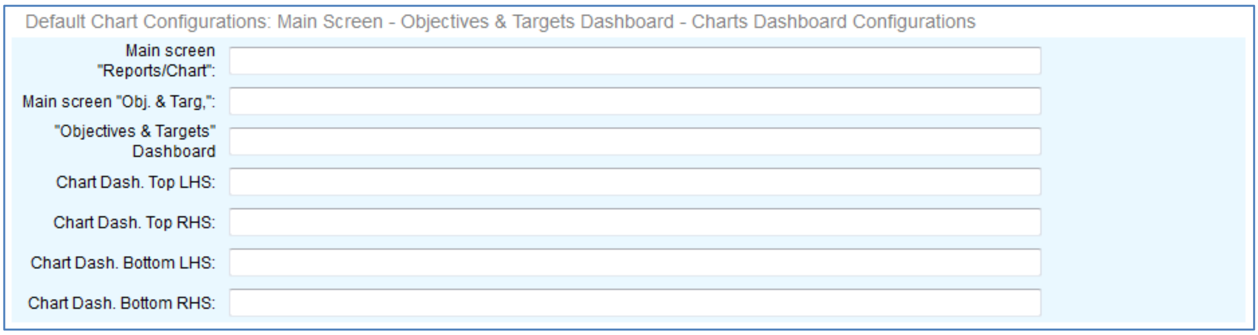
- **Units – Electrical Energy**: Input the unit used for reporting electrical energy use
- **Units – Thermal Energy**: Input the unit used for reporting thermal energy use
- **Units – Water (delivered):** Input the unit used for reporting water use
- **Units – Currency**: Input the currency unit for reporting
- **Units – CO2**: Input the unit used for reporting CO2
- **Area**: (not currently used)

NOTE: When finished editing the Units and settings document click on Save in the top left corner and then close the window. You're new Unit settings will then appear throughout the system and on all new documents you create in the software. Some old documents need to be re-saved to see new units, if changes have been made to the settings above.

League Tables & Units

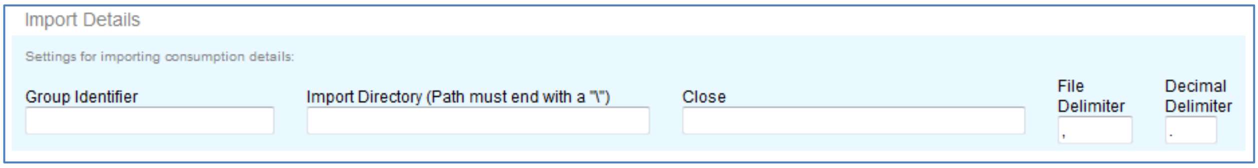
(Not currently available in this version of the software)

Default Chart Configurations: Main Screen – Objectives & Targets Dashboard – Charts Dashboard



This defines the default charts for user who default location is defined as "All Allowed" in the User settings (see section **Error! Reference source not found.** for detailed explanation.) See section 11.1.3 for description of Default Chart configurations.

Import Details



These are setting used to configure the automated importing of consumption data using FTP data transfer techniques and CSV files. Contact Enerit Help Desk (help_desk@enerit.com) for help on configuring these settings.

11.5 Playbook IO

The IO Playbook allows users to create improvement opportunities from a pre-defined list or library of energy saving strategies.

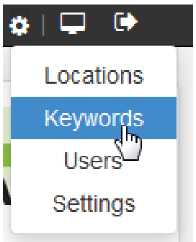
The next section details how to configure the individual "Playbook IO" items in the pre-defined list shown above.

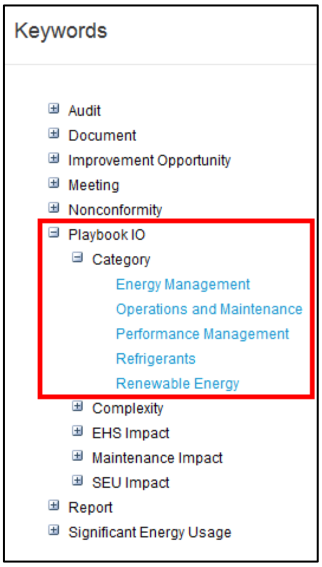
11.5.1 Creating a new Playbook IO

Title: Enter the title of the energy saving strategy

Reference: Enter a reference number or lave blank and a number will be assigned automatically.

Category: Select the category of the energy saving strategy. The category field keywords are configured in Keywords area in the Admin section (see 11.2 above for configuring keywords.)





Sub-Category: Select the associated sub-category for the selected category above.

Details: Enter the details of this energy saving strategy. The details entered here will be copied into associated improvement opportunities created from this Playbook IO.

Attachments: Add ay attachments if necessary.

Timeframe: Select the timeframe keywords.

GHG Scope 1&2: Select the GHG Scope 1&2 keyword associated with this energy saving strategy.

Natural Resources: Select the Natural Resources keyword associated with this energy reduction strategy.

Social Sustainability: Select the Social Sustainability keyword associated with this energy reduction strategy.

Detailed Description: Enter more detailed description of this energy saving strategy. Note: This text will not be copied to any improvement opportunities created from this Playbook IO but the use can link back to view this detailed description.

Financial Considerations: Enter details on financial considerations of this energy saving strategy. Note: This text will not be copied to any improvement opportunities created from this Playbook IO but the use can link back to view this detailed description.

Implementation

Considerations: Enter any implementation considerations of this energy saving strategy. Note: This text will not be copied to any improvement opportunities created from this Playbook IO but the use can link back to view this detailed description.

Potential Limitations: Enter any limitations of this energy saving strategy. Note: This text will not be copied to any improvement opportunities created from this Playbook IO but the use can link back to view this detailed description.

A detailed description of example airport specific impact factors is available in Appendix A

Appendix A: Action Management Prioritization Framework

A.1 Objective of the prioritization framework

ISO 50001 standard requires the identification, prioritization and recording of opportunities to improve energy performance (Improvement Opportunities or IOs). Typically, the bulk of IOs are generated during the energy review stage. A tool to assist energy managers on the prioritisation of IOs is provided within the Enerit solution.

Enerit software provides a high level ranking method based on a scoring system. Improvement opportunities are assigned a set of categories according to predetermined evaluation criteria. Eventually, a final ranking of IOs is produced aimed to facilitate decision making. Low risk and high impact IOs would rank high whereas less efficient and risky actions will score low. This classification ultimately encourages adoption of IOs in a systematic way, mitigating uncertainty.

A.2 Proposed ranking system

This is a proposed ranking for airports based on sustainability programs targeted at Airports such as the ACRP 02-10 tool. The ranking establishes 6 evaluation parameters for any Improvement Opportunity, being these:

G. Total Estimated Savings [TS]

H. Payback Period [PB]

I. Timeframe [TF]

J. GHG Scopes 1&2 emissions reduction [GHG]

K. Impact on Natural Resources [NR]

L. Impact on Social Sustainability [SS]

Each of these has different valuation criteria and will be described in the next sections.

A.2.1 Financial Parameters

Financial information about the IOs is needed for two of the valuation criteria: Estimated savings and Payback period. The degree of accuracy on financial information such as capital cost, or operations and maintenance annual expenditure costs can vary greatly, from roughly estimates or detailed quotations. Enerit software provides flexibility for this, allowing the user to input any quantity. The energy manager ultimately may provide comments or additional information regarding the method or criteria used for the quantities entered (e.g.: “this is estimated” or “based on up to date quotations”). Comment fields are provided for this purpose. Users can also link IOs with supporting documentation such as detailed quotations coming from subcontractors or documents generated based on an internal cost database. For some of the actions proposed in the pre-populated list, a threshold bands will provide an orientation of the degree of capital intensity of the action proposed.

A.2.1.1 Total Estimated Savings - [TS]

The Total Estimated Savings is calculated based on estimated energy savings entered by the user. The tool allows a differentiation between Thermal and Electrical energy savings. Estimated annual Operations and Maintenance (O&M) cost savings are calculated by the users and entered in the “Annual Co-Benefits” field.

Once the energy savings and the O&M cost savings have been entered, the annual estimated costs savings are calculated automatically by the tool and appear in the “Total Estimated Savings” field. The energy cost savings are calculated using unit costs defined in the “Location” configuration in the “Administration” view (See Section on Administration in the User Guide.)

The ranking criteria for the “Total Estimated Savings” are configured as follows:

Total Estimated Savings [TS]	Score
TS < €10,000	**4**
€10,000 < **TS** < €25,000	**3**
€25,000 < **TS** < €100,000	**2**
€100,000 < **TS**	**1**

A.2.1.2 Payback Period - [PB]

The software calculates the Payback period of an IO using two inputs: (1) Total estimated savings (described above) and (2) the capital cost to implement the IO.

The “Capital Cost” is defined as the initial upfront cost of an Improvement Opportunity. The user may also consider identified funding instruments (tax rebates, carbon mitigation/offset credits, accelerated depreciation allowances), when calculating the initial capital cost.

The rating criteria for the “Payback Period” are configured as follows:

Payback Period [PB]	Score
PB < 2 Years	**4**
2 Years < **PB** < 5 Years	**3**
5 Years < **PB** < 10 Years	**2**
10 Years < **PB**	**1**

A.3 Timeframe and Potential Impacts

This section is strongly linked with the environmental regulations and compliance with standards such as ISO 14001, widely adopted by airports. Energy and environmental aspects are interrelated fields. Actions in one field mutually influence/affect to aspects on one another. In many cases, the decision chain with regards to Energy Management and Environmental compliance is closely connected or fall under the same person/team dealing with O&M.

The metrics related and described next are:

- Timeframe [TF]
- Impact on GHG Scope 1 and 2 emissions [GHG]
- Impact on Natural Resources [NR]
- Impact on Social Sustainability [SS]

A.3.1 Timeframe - [TF]

This metric represents the duration of the IO implementation. The user should consider the whole lifecycle of the IO including also the time spent to plan, design and build the reduction strategy and get in operation. Administrative procedures, bureaucratic delays or general long term uncertainty can also have a significant impact on decision-making. Timeframe can influence decisions due to management short-termism, regulatory framework uncertainty or long term financial risk. Short term and high impact actions are considered as more positive and likely to be adopted thus rating higher.

The rating criteria for “Timeframe” are as follows:

Timeframe [TF]	Score
TF < 2 Years	**4**
2 Years < **TF** < 5 Years	**3**
5 Years < **TF** < 10 Years	**2**
10 years < **TF**	**1**

A.3.2 GHG Scope 1 and 2 emissions reduction - [GHG]

This parameter reflects how a particular IO impacts on sources of emissions for which airport would be responsible. Scope 1 and 2[1] refers to the definition on the GHG protocol [3]. The metric was defined based on the Green House Gas Protocol® classifications and professional judgment concerning the degree of effect on the emissions [3]. The airport need to define an inventory as part of the GHG emissions declaration, thus the IOs have to be allocated and calculated accordingly with the inventory.

The rating criteria for the “GHG Scope 1 and 2 emissions reduction” are as follows:

GHG Scope 1 and 2 emissions reduction [GHG]	Score
Zero: There is NO reduction of S1/S2 scope emissions	**0**
Low: Reduction of S1/S2 scope emissions is relatively low	**1**
Medium: There is a significant reduction of S1/S2 scope emissions	**2**
High: There is a high reductions of S1/S2 scope emissions	**3**

A.3.3 Impact on Natural Resources - [NR]

These indicate what effect the IO will have on natural resources. This assessment is evaluated in terms of the direct effect of the strategy on natural resources e. g.: emissions of air pollutants to the atmosphere,

[1] **Scope 1** emissions are direct emissions from sources it owns or controls (such as company-owned cars and factory smokestacks). Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity. **Scope 2** emissions refer to the electricity, heating and cooling energy the airport consumes. Indirect GHG emissions are emissions that are a consequence of the activities of the airport, but occur at sources owned or controlled externally to the airport boundary.

increase/decrease on general water usage, effect on ground water reserves, impact on sediments of surrounding areas, depletion of natural water reservoirs, impact on floodable lands, depletion of undeveloped lands, etc.). This is important when considering energy efficient technologies that may have an impact on natural resources, e.g.: ground water source heat pumps may have a side effect on lakes or rivers ecosystems by changing average temperature.

The rating criteria for “Impact on Natural Resources” are as follows:

Impact on Natural Resources [NR]	Score
Negative impact on natural resources	**- 2**
No impact on natural resources	**0**
Positive impact on natural resources	**+2**

Note: Within the Enerit tool, a ranking of 1, 2, 3 have been used for the -2, 0, 2 scores respectively.

A.3.4 Impact on Social Sustainability – [SS]

This parameter is based on one of the pillar of sustainable development as defined by WCED 1987 [2]. This criterion reflects how an IO affects the surrounding communities in terms of qualitative impacts (positive or negative). Generally, the impact in the human environment is correlated with impact in natural resources. Examples of this parameter could be (but not limited to): Impact in noise generation, changes in traffic volume in the surroundings of the airport, etc.

The rating criteria from “Impact on Social Sustainability” configured in the tool is as follows:

Impact on Natural Resources [NR]	Score
Negative impact on social sustainability	**- 2**
No impact on social sustainability	**0**
Positive impact on natural resources	**+2**

Note: A ranking of 1, 2, 3 have been used for the -2, 0, 2 scores respectively.

A.4 Composition of the Priority Ranking

The above ranking evaluation parameters and associated ranking criteria can be configured in the Enerit software

The final raking of the different IOs is constructed using the following formula:

IOs grade = TS x PB x TF x GHG x NR x SS

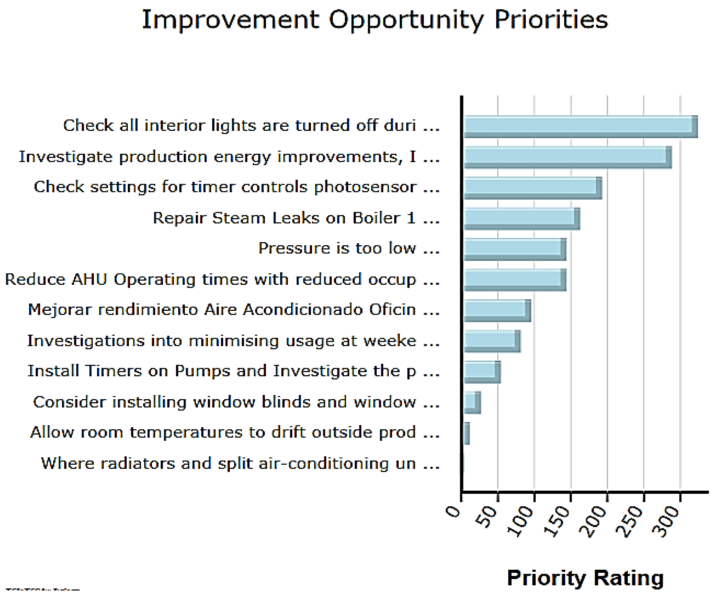
Where: TS = Total savings score, PB = Payback Period score, TF = Timeframe period score, GHG = Green House Gas Scope 1&2 score, NR = Natural Resources score, SS = Social Sustainability score.

The following table summarizes the different valuation criteria for each impact factor, showing the score assigned for each band or threshold considered.

Impact Factor	Band	Score
[TS] Total Estimated Savings	TS < €10,000	4
	€10,000 < TS < €25,000	3
	€25,000 < TS < €100,000	2
	€100,000 < TS	1
[PB] Payback Period	PB < 2 Years	4
	2 Years < PB < 5 Years	3
	5 Years < PB < 10 Years	2
	10 Years < PB	1
[TF] Timeframe	TF < 2 Years	4
	2 Years < TF < 5 Years	3
	5 Years < TF < 10 Years	2
	10 Years < TF	1
[GHG] GHG Scope 1 and 2 emissions reduction	Zero: There is NO reduction of S1/S2 scope emissions	1
	Low: Reduction of S1/S2 scope emissions is relatively low	2
	Medium: There is a significant reduction of S1/S2 scope emissions	3
	High: There is a high reductions of S1/S2 scope emissions	4
[NR] Impact on Natural Resources	Adverse impact to natural resources	-2
	No impact on natural resources	0
	Positive impact on natural resources	2
[SS] Impact on Social Sustainability	Adverse impact to social sustainability	-2
	No impact on social sustainability	0
	Positive impact on social sustainability	2

Note that some criteria work with negative scores. These scores are automatically transformed by the tool when calculating the priority ranking.

The following figure shows an example of the final outcome of the ranking process, which is a list IOs sorted by highest ranking score at the top based on the above calculations.



Example list of Improvement opportunities ranked by priority

A.4.1 Additional considerations

In addition to ranking criteria, other considerations may be taken into account. Users may or may not consider using this ranking framework when analysing any of the IOs proposed. Again, it is up to the user to decide which degree of information is useful to facilitate decision making. Some organizations may require a thoroughly investigation of whereas other may use the tool for a quick initial selection of IOs for further analysis.

Within the "IO Playbook" (See Section on "IO Playbook" in this User Guide) additional fields are provided as supporting information and are broken down into four categories as follows:

1. Detailed description. Provides details of the IO further than the initial short description. This section may include useful online resources, links to key documentation, identified sources of funding and/or case studies where the IO have been implemented;
2. Financial considerations. This section provides the details that went into the determination of the financial parameters (estimated capital cost, O&M costs, payback period, etc.) It includes any additional information that may be needed to be considered for the implementation of the IO. For example, this text may discuss strategies involving third-party agreements. Here a list of examples of potential issues affecting financial aspects:

   - Financial framework regulating Energy Service Companies (ESCOs) under UE legislation;
   - Strategies affecting airport operation and subject to approval or negotiation with other stakeholders such as airlines, handling companies etc.;
   - Revenues generated by selling energy (renewable energies, co-generation);
   - Funding instruments: carbon offsets, tax rebates, accelerated depreciations, revolving funds or other indirect costs or financial benefits that may be associated with the reduction measure;

3. Implementation considerations. This section explains how the rest of criteria (impact on natural resources, timeframe, GHG reductions and Social sustainability) were considered.

4. Potential limitations. Here the user can identify potential obstacles to adopt the IO that may be encountered. Interaction or competition between existing systems or technologies already present at airports may limit the extent of the IO considered. GHG carbon accountancy may increase Scope 1 while reduce Scope 2. Identified risks can also be considered in this section

References

[1] ACRP Report 56, 2011. **"Handbook for Addressing Practical Greenhouse Gas Emission Reduction Strategies for Airports".** June, 2011.

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[3] WRI. 2001 **"The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard".** Available from [http://www.ghgprotocol.org/] accessed on [15/Aug/2013]