



# Checking

## 5.1. Monitoring, measurement and analysis

### ISO 50001 (SECTION 4.6.1) DEFINES THAT:

- The LA should have in place a monitoring system that ensures regular monitoring, measurement and analysis of the energy performance among the LA's assets. The LA should have a clear measurement plan and should ensure accurate data, as well as be able to address substantial deviations in performance.

### WHAT DOES IT MEAN IN A PRACTICAL SENSE FOR LAs?

LAs should have a suitable monitoring system in place. Moreover, they should be able to properly measure the energy use (e.g. meters should be calibrated). LAs should also be able to analyse the energy use and their respective EnPIs. The LAs involved in Compete4SECAP use an online [energy monitoring platform](#) for specifically designed for municipalities. However, they are also free to use their own simpler or more complex spreadsheets if they prefer. Monitoring itself is based on the EnPIs defined during the energy planning phase (see chapter 3).

### HOW IS IT DOCUMENTED IN AN ENMS?

The manual briefly describes monitoring, measurement and analysis practices in the LA according to ISO 50001 requirements. Procedures and a monitoring plan can be part of the documentation. In some cases, LAs issue a specific local order about how the monthly energy data should be recorded and reported.

### SOME IDEAS AND SUGGESTIONS WHERE TO START:

- Ensure accuracy of your current energy measurements, meaning that all the measurement equipment has been tested according to legal requirements.
- Investigate how energy monitoring and analysis is and will be ensured. Will you use software tailored for EnMS or will you create your own spreadsheet?

### QUESTIONS THAT OFTEN RISE IN THIS RESPECT AND ANSWERS TO THEM

- Q: WHY SHOULDN'T WE FORGET ABOUT THE MONITORING? WHY IS IT IMPORTANT?
  - Monitoring of the energy consumption and its trends is essential to assess if the LA actually is going to achieve its targets. Only through the introduction of a clear monitoring process in the everyday routines of the LA, can substantial results (like improved microclimate, reduced energy consumption, etc.) be accomplished most effectively.
- Q: HOW OFTEN SHOULD THE LA ENSURE ENERGY DATA IS GATHERED AND ANALYSED?
  - Monitoring should be based on monthly energy consumption data. If the LA has only quarterly data, it is difficult to estimate why the energy consumption has actually increased or decreased. Following consumption on a monthly basis, municipal employees (e.g. in buildings) can more easily follow, and correct, their own patterns and behaviour.
- Q: WHAT IS AN ENERGY MONITORING PLATFORM?
  - An energy monitoring platform is an online platform for LAs to record, analyse and benchmark their own energy consumption on a monthly basis. In the Compete4SECAP project, it covers public buildings, public lighting, public transport and the municipal fleet. Different categories of users are created with a scope to provide them access to real data in order to help them be able to take immediate action themselves.

## 5.2. Internal audit of the EnMS

### ISO 50001 (SECTION 4.6.3) DEFINES THAT:

- LAs should carry out an internal audit and document the frequency of them. The standard also defines three main requirements of the internal audit, as well as the criteria for conducting it.

### WHAT DOES IT MEAN IN A PRACTICAL SENSE FOR LAs?

Once a year the LA should conduct an internal audit of the EnMS to assess its conformity and functionality, and to determine if/how it can be improved. Internal audits can be done by any employee of the LA who can ensure objectivity and impartiality. It means that the Energy Manager of the LA would not be the suitable person to perform it, due to her/his responsibilities, but any colleague who is not directly involved in EnMS could fill this role.

### HOW IS IT DOCUMENTED IN AN ENMS?

The manual briefly describes the main principles about how an internal audit should be conducted and how the selection of the internal auditor will be performed. A standard template with the agenda of an internal audit should be part of the EnMS documentation. At the end of each internal audit, a protocol should be written.

### SOME IDEAS AND SUGGESTIONS WHERE TO START:

- Define how selection of your internal auditor will be done.
- Prepare standard templates according to the ISO 50001.
- Briefly describe the principles and approach in the manual.

### QUESTIONS THAT OFTEN RISE IN THIS RESPECT AND ANSWERS TO THEM

- Q: WHO CAN PERFORM THE INTERNAL AUDIT FOR MY LA?
  - Internal audits can be performed by any employee of the LA who is relatively familiar with the ISO 50001 standard (need not have expertise), but can still remain objective/impartial and is not directly involved in the EnMS already. If there is no local competence already within the LA, it can also be subcontracted to an external auditor.
- Q: IN A PRACTICAL SENSE, HOW IS THE INTERNAL AUDIT PERFORMED?
  - Practically, it means that the internal auditor assesses the documentation of the EnMS against the requirements outlined by the ISO 50001. It checks also if the involved parties are respecting the EnMS and if there are any possibilities to improve the overall process.

## 5.3. Corrective and preventive actions

### ISO 50001 (SECTION 4.6.4) DEFINES THAT:

- LAs should document how nonconformities will be addressed. The standard defines a set of requirements that the LA should tackle while taking corrective and/or preventive actions.

### WHAT DOES IT MEAN IN A PRACTICAL SENSE FOR LAs?

Corrective and preventive actions are related to the Operational control (see section 4.4) and other aspects of the EnMS, meaning to everyday routine within the LA. For example, as part of EnMS, the LA defines a certain monthly energy consumption for each public building (usually based on its average consumption of the previous 3 years), and the LA has also set a certain level of deviation for energy consumption (e.g. 10%). In this case, if energy consumption during a month is above or below this acceptable level of deviation, the LA should have in place a clear guidance for how to proceed. Usually in such a case, the building manager would report the reason back to the Energy Manager and take corrective action (if needed). LAs should keep a track of all corrective and preventive actions taken and have a registry of them.

### HOW IS IT DOCUMENTED IN AN ENMS?

The manual briefly describes the main principles how nonconformities are addressed, including timeframe. A registry for corrective and preventive actions should be kept.

### SOME IDEAS AND SUGGESTIONS WHERE TO START:

- If you have not defined how the Operational control will be ensured (section 4.4), you should start with this step.
- Prepare a registry for corrective and preventive actions according to the ISO 50001.
- Briefly describe the principles and approach in the manual.

### QUESTIONS THAT OFTEN RISE IN THIS RESPECT AND ANSWERS TO THEM

- Q: WHY DO WE NEED TO RECORD THE NONCONFORMITIES?
  - If we are not aware of (unrecorded) nonconformities, it is difficult to improve any process. On the other hand, if we are conscious that something is not really working as it should, we can actually take action to change that. An illustrative example is a common situation with renovated public buildings namely that it is common that LAs do not monitor energy consumption after renovations - this often results in missed opportunities for energy savings. Instead, for cases whereby a LA actually does register its nonconformities in a registry, these issues can be addressed and solved.

## 5.4. Management review

### ISO 50001 (SECTIONS 4.7) DEFINES THAT:

- LAs should plan for a management review at adequate intervals according to the needs of the EnMS, the eventual occurrence of energy performance deviations or when needing to verify EnPIs. The standard defines necessary inputs and outputs of the management review.

### WHAT DOES IT MEAN IN A PRACTICAL SENSE FOR LAs?

A management review is an annual report which summarises the results and achievements of the EnMS and ensures further continuity of the whole process. It is specifically targeted for top management of the LA. The ISO 50001 clearly defines which issues should be addressed and what is expected out of the management review.

### HOW IS IT DOCUMENTED IN AN ENMS?

A short section in the manual can be included to define how often a management review will be conducted and how the approval process is done.

### SOME IDEAS AND SUGGESTIONS WHERE TO START:

- Define how often your management reviews will be prepared and what they will include.

### QUESTIONS THAT OFTEN RISE IN THIS RESPECT AND ANSWERS TO THEM

- Q: WHY IS A MANAGEMENT REVIEW NEEDED?
  - A management review (and related meetings for revision and approval) is an important phase in the whole process to summarise and inform top management of the LA what has been achieved (or not) during the previous year. It allows them to agree upon further steps towards continuous efficient energy use (e.g. expand the existing boundaries of the EnMS) and plan necessary budgets (if needed).
- Q: HOW DO I PRESENT THE REVIEW TO THE MANAGEMENT?
  - A standardised template can be made. The ISO 50001 standard already defines the main topics to include in the annual review, though more can be added. The Energy Manager will be probably the most appropriate person to draft the review, which afterwards will be discussed in the Energy group. The final version will then be presented to the top management (preferably to the Council of the LA).

## CONTACT

### AUTHORS:

Emanuele Cosenza,  
Marco Devetta (SOGESCA)  
Marika Rošā, Līga Žogla (Ekodoma)  
Michaël Toma (MT Partenaires Ingénierie)  
George Stiff (ICLEI)

### PROJECT COORDINATOR:

“EKODOMA” Ltd.  
Noliktavas Street 3-3, Riga, LV-1010  
Email: [ekodoma@ekodoma.lv](mailto:ekodoma@ekodoma.lv)

### COMMUNICATION CONTACT:

ICLEI – Local Governments for Sustainability  
European Secretariat  
Leopoldring 3, 79098 Freiburg, Germany

Email: [info@compete4secap.eu](mailto:info@compete4secap.eu)

 [www.compete4secap.eu](http://www.compete4secap.eu)  
 [info@compete4secap.eu](mailto:info@compete4secap.eu)  
 [Twitter: #Compete4SECAP](https://twitter.com/Compete4SECAP)

