

## DC Dredging Group Energy Management Program

### *CO<sub>2</sub> performance ladder manual*



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## 1 Introduction

### 1.1 CO<sub>2</sub> performance ladder

For some years, DC Dredging has implemented an energy management system that lays down energy policy. Energy policy reflects DC Dredging's management commitment to the importance of reducing energy consumption and continuing efforts to improve energy performance. Energy management is laid down in this document, updated in December 2022. This follows the June 2022 Internal and External Audit.

### 1.2 Description of the organization

DC Dredging is a group of companies which are mainly involved in extracting granules at sea for the construction industry. This extraction takes place with sea-going vessels. The products are delivered either directly or via inland waterway vessels to the customer. We are also carrying out small dredging projects such as spraying beaches.

### 1.3 Scope and Organizational Boundery

DC Dredging's Energy Management System covers the following companies within Group De Cloedt:

Company	Ship
Interballast BV	DC Ostend
Interballast BV	Interballast III
Rio BV	Rio
DC Vlaanderen 3000 BV	DC Vlaanderen
DC Rock BV	DC Brugge
DC River	DC Orisant
DC River BV (Inland Waterway Transport)	Rio 1 Rio 4 Margaret Ann
Chartered inland waterway vessels:	Jaguar 2 Lummie Navio Stelvio
DC Resources BV	n/a

The basis for the certification of the CO<sub>2</sub> Performance ladder is called Organizational Boundary. This is the (part of) company to which the performance ladder relates. The starting point for the performance framework is that the organizational boundary is chosen in such a way that no C providers are among A providers. The organizational boundary for DC Dredging has been determined on the basis of the Green House Gas Protocol as described in the Handbook CO<sub>2</sub> Performance ladder version 3.1.

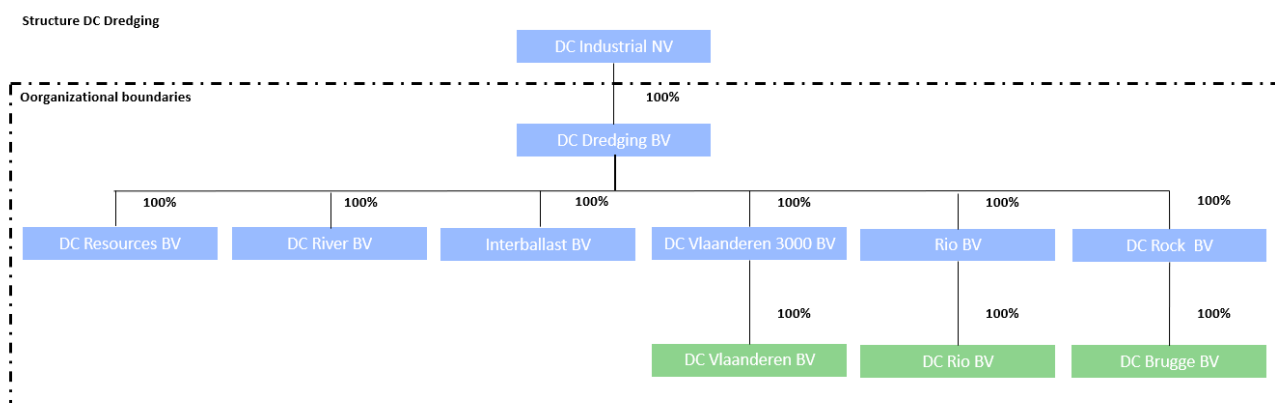


This approach has been chosen because DC Dredging is the top of the hierarchy of the underlying companies. Only the underlying companies within DC Dredging are subject to a certified energy management system.

The Green House Gas Protocol describes three different approaches to defining the boundaries of the Organizational Boundary organization:

1. 'Equity share': The organization includes those systems in which the organization has an economic share.
2. 'Operational control' means: The organization shall include those systems which are subject to operational influence by the organization.
3. 'Financial control': Organizations include those systems that are financially affected by the organization.

A top-down approach is used to determine the organizational boundaries of the listed companies within DC Dredging. DC Dredging has operational responsibility for 100 % of the emissions of all the business lines it controls.



The CO<sub>2</sub> certification scope for the organization is defined as follows:

- EN: Dredging, transporting, and marketing of sand and gravel, as well as combating oil in the event of incidents at sea.
- ENG: Dredging, transport and trade of sand and gravel as well as oil spill recovery operations in the event of incidents at sea.
- Fr: Le dragage, le transport et le commerce de sable et gravier, ainsi que la lutte contre la pollution par récupération des hydrocarbures en cas d'accident maritime.
- DE: Das Baggern und der Transport von und der Handel mit Sand und Choose sowie die Ölbekämpfung auf See.

## 1.4 Energy management program

This manual describes DC Dredging's energy management program and is based on NEN-EN-ISO 50001 Energy management (see Chapter 2). The reference to the ISO 50001 provides a reference framework but does not require the full implementation of this management system. DC Dredging has incorporated energy management into its own organization, according to the ISO-9001 standard.

Energy management is a key factor in the structural improvement of energy efficiency. Ultimately, energy management at organizational level helps to reduce energy needs and CO<sub>2</sub> emissions. The Energy Management Program is part of DC Dredging's Integrated Quality, Arbo and Environment System (KAM) and covers all activities and projects of DC Dredging.

Through this description of the energy management program, DC Dredging aims to show how energy policy objectives set are planned, implemented, monitored, and evaluated.

The energy management program is the result of the management policy statement on energy management, endorsed by the management. This statement reflects DC Dredging's ambition to continuously strive for optimal energy management.

The use of energy generates the greenhouse gas CO<sub>2</sub>. The energy management program shall use energy use and CO<sub>2</sub> emissions as a synonym. Reporting energy consumption in CO<sub>2</sub> emissions has the advantage of making the various energy sources comparable. The impact of energy consumption on the environment can therefore be expressed in terms of the amount of CO<sub>2</sub> released by combustion.

## 1.5 Administration

The management of the energy management program shall be at the management level. The first point of contact is the Finance Manager. The management is ultimately responsible for the functioning of the energy management program within the organization. The Finance Manager monitors the implementation of the policy adopted by the management. Changes to the system, the manual and other documentation are made through the Finance Manager of DC Dredging.

## 2 Building energy management program

### 2.1 NEN-EN-ISO 50001

The energy management program is based on the European Standard NEN-EN-ISO 50001 "Energy management systems - Requirements with guidance for use". This standard describes the requirements that an energy management program must meet.

The aim of this European standard is to support organizations in developing systems and processes to achieve the necessary energy consumption reduction. Energy management policies, processes and objectives shall be laid down in an energy management program.

The implementation of an energy management program within an organization aims to achieve cost savings and lower CO<sub>2</sub> emissions.

### 2.2 Updating energy management program

DC Dredging will review its energy management program annually to ensure it is still up to date. If necessary, the energy management program shall be reviewed. Updating the energy management program is an optional process; annual verification of whether the energy management program is still up to date.

The ISO 50001, like ISO 9001 and ISO 14001, is based on the plan-do-check-act (PDCA) cycle: define policies and objectives, plan actions, implement measures, monitor results and, on that basis, re-establish new objectives and possibly adjust policies. This cycle is the core of this standard and will also be used as a structure for this energy management program.

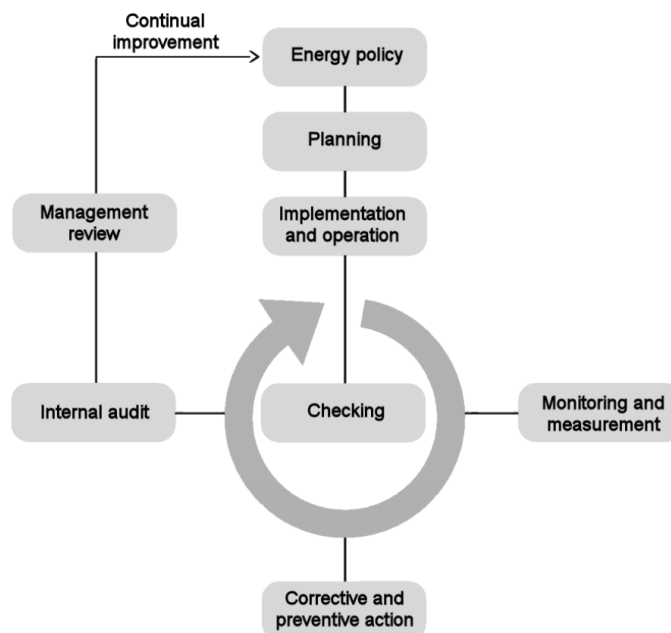


Figure 1: ISO 50001 PDCA cycle

The PDCA cycle includes the following:

1. In the 'PLAN' phase, we are starting to introduce energy management. A number of steps have been taken with the ultimate objective of the energy saving plan.
2. In the "DO" phase, the project proposal is developed into a project plan by defining tasks, responsibilities, and competences, through training and awareness raising and through communication. In this way, energy management will be given its own place in the organization.
3. An important activity in energy management is to regularly measure and analyze energy use. This is done in the "CHECK" phase. Only by regularly measuring and comparing the measures taken will we gain an insight into the effectiveness of the measures taken and any discrepancies be detected.
4. ACT phase: What action will be taken if the measures to achieve more efficient energy use have been introduced in the organization, and if the analyzed data show that they do not (completely) meet them? Then we will examine what improvements can be made and where we will have to adjust to achieve the desired result. And what does it do if they turn out to be very good? Then we will also examine whether improvements can be made. It is important to continue to react promptly and adequately to the results of the measures introduced.



### 3 'PLAN': Energy consumption and reduction opportunities

#### 3.1 Inventory & Planning

The first step towards efficient energy management is to analyze energy consumption, both current consumption and consumption over time. Knowing where, how, and how much energy is consumed is the basis to achieve effective reduction measures. When the energy consumption has been reliably mapped out, we can investigate where possible energy savings can be achieved and what realistic reduction targets are.

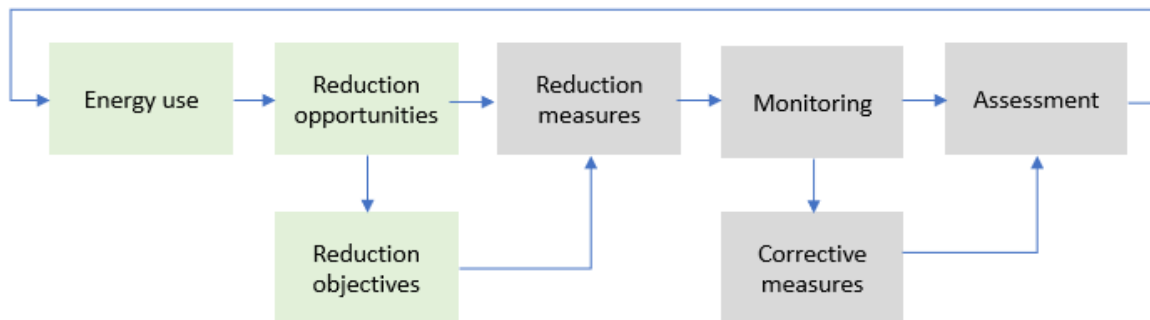


Figure 2: Flowchart Energy Management, 'PLAN' Phase

The analysis of energy consumption, the recognition of reduction channels and the setting of reduction targets are part of the 'PLAN' phase of the PDCA cycle as described in Chapter 2. Chapter 3 of the Energy Management Program describes how DC Dredging intends to reflect its energy consumption and describe reduction opportunities and reduction targets.

#### 3.2 Power flows

DC Dredging consumes energy in four 'locations': at its office, on its vessels (projects), at the Sluiskil yard and on the way by means of transport.

1. On its premises, DC Dredging consumes energy through the use of electricity and for heating. DC Dredging has its office in Breskens (NL).
2. On its ships, DC Dredging consumes energy through the use of fuel oil, electricity, and the use of various other fuels. DC Dredging has multiple project locations. Energy consumption by subcontractors and suppliers outside DC Dredging's connections and facilities is covered in scope 3 (see section 3.3) and is therefore not considered for the time being.
3. At the yard in Sluiskil, DC Dredging consumes energy from diesel oil (through the use of cranes and excavators), there is electricity consumption and there is consumption of propane, petrol and LPG, for example.

- For its transport resources, DC Dredging consumes energy by using fuels. DC Dredging uses leased, private and occasional commercial vehicles for transportation.

### 3.3 Power consumption

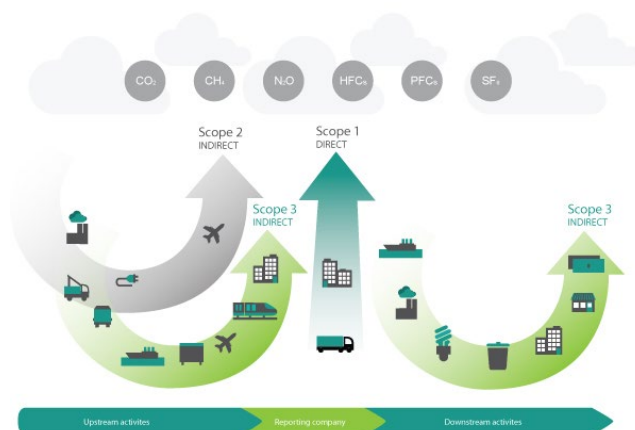
DC Dredging wants to present its energy consumption annually. By analyzing and identifying where most energy is consumed, areas can be identified that offer the greatest potential for significant reductions.

By clearly identifying areas of interest, reduction measures can be targeted and effectively implemented in the organization. Energy consumption analyses will be compared to a defined base year in order to assess the effects of measures, also over time. This initial energy consumption inventory was carried out for the **year 2017**, which also serves as a base year. Monitoring and analysis is essential in monitoring reduction measures to determine their effectiveness and, if necessary, take measures to adjust.

Contributions to CO<sub>2</sub> emissions are included in the ISO 14064-1 and the GHG protocol, divided into three scopes. DC Dredging Inventorizes, analyzes and reports its energy consumption for its scope 1 and 2 emissions according to ISO 14064-1:

- Scope 1: consumption of fuel in operation
- Scope 2: indirect greenhouse gas emissions from the use of energy produced elsewhere from fossil fuels.
- Scope 3: indirect greenhouse gas emissions from activities elsewhere leading to CO<sub>2</sub> emissions.

The following figure summarizes the scoping diagram as DC Dredging uses it, according to the CO<sub>2</sub> performance ladder. DC Dredging only inventorizes its scope 1 and 2 emissions.



CO<sub>2</sub> performance ladder

In order to inventorize and analyze energy consumption, DC Dredging uses its own transfer program based on the above scoping diagram and conversion factors for converting energy consumption into CO<sub>2</sub> emissions (Annex C Manual CO<sub>2</sub> Performance ladder). In addition to the accounting program, a background report will be drawn up for each inventory, explaining the reasons for the calculation and analyzing the results. This analysis shows, among other things, where significant energy use has been made and where there is a potential for considerable profit. Each energy analysis shall include at least:

- Energy consumption over the year of research.
- Past energy consumption.
- Energy efficiency analysis.
- Identification of areas with the highest energy consumption.
- An estimate of energy consumption over the next period.
- Identification for further reduction of energy consumption.

### **3.4 Project Energy Consumption Registration**

DC Dredging records the energy consumption on its ships and all data are aggregated by the manager into an emission inventory. Consumption data are supplied periodically by the central administration to the manager.

### **3.5 Energy consumption reduction opportunities**

Any 'energy consumption reduction opportunity' can contribute to reducing DC Dredging's energy consumption. It goes without saying that not every opportunity is actually implemented in the organization. A cost-benefit analysis will be made for each opportunity before implementation is actually undertaken. The opportunities are discussed in the MT periodical consultations. If an energy consumption reduction opportunity is considered to be an opportunity, the opportunity is transformed into an objective and action. The Action Plan and the Opportunities Register will formulate and effectively implement an energy consumption reduction measure in the organization. This is explained in more detail in Chapter 4.

For each energy consumption reduction opportunity, the expected energy consumption reduction over a defined time period shall be indicated as a minimum, and whether the potential is actually implemented in the organization. The expected energy consumption reduction is related to one of the five emission indicators (see Chapter 5).

### 3.6 Energy consumption reduction targets and opportunity register

Energy consumption reduction targets are based on concrete reduction opportunities. The expected reduction is indicated on an opportunity-by-opportunity basis. By analyzing all reduction opportunities, a picture of the possible overall reduction can be drawn. DC Dredging sets periodic energy consumption reduction targets for a pre-defined time period based on energy consumption reduction opportunities implemented in the organization. Reduction targets must be ambitious and 'SMART' formulated.

DC Dredging keeps track of all energy consumption reduction opportunities and targets in the Action Plan and 'Energy Consumption Reduction Opportunities Register'. The action plan and the register shall be supplemented whenever a new opportunity arises. The energy consumption reduction opportunities register is part of the energy management program.

### 3.7 Energy policy

DC Dredging prepares an action plan for the coming year during the Executive Board review (6.4), which is also reflected in the opportunity register. The preparation of this action plan is part of the energy management program. Energy policy reflects DC Dredging's management commitment to the importance of reducing energy consumption and continuing efforts to improve energy performance. The policy is prepared by DC Dredging as a publicly available statement on its energy objectives.

When and how energy policy is communicated is defined in the **communication plan**. Energy policy is endorsed by DC Dredging's management.

## 4 'DO': Implementation measures

### 4.1 Operation

This chapter describes how DC Dredging aims to achieve its energy consumption reduction targets by implementing energy reduction measures in its organization. The implementation of specific measures will not be addressed in this chapter. Every opportunity is unique and requires its own approach. Only the general methodology for implementing energy reduction measures will be described here.

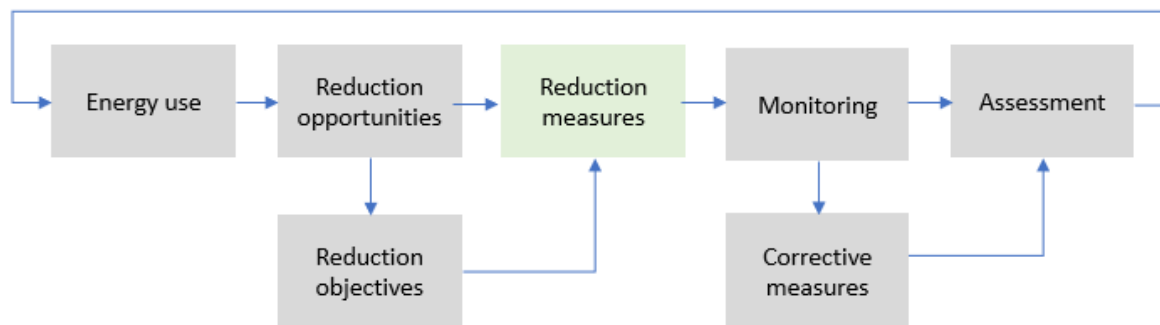


Figure 4: Flowchart Energy Management, 'DO' Phase

Implementation of reduction measures is part of the 'DO' phase of the PDCA cycle as described in Chapter 2. This chapter describes how opportunities are implemented as measures in the organization.

### 4.2 Determining energy consumption reduction measures

To reduce energy consumption, energy consumption reduction opportunities (as discussed in Chapter 3) will be implemented in the organization. The organization's implementation of opportunities refers to energy consumption reduction measures. Before implementation, a list of energy consumption reduction opportunities which will have the most impact and yield the most return from a business-to-business point of view will be drawn up. This list will be submitted at the Fleet Days Meeting.

### 4.3 Decision - implementation measures

The decision to implement energy consumption reduction measures in the organization is taken by management. Decisions taken shall be recorded in the Fleet Days Consultation Report. Once the decision on implementation has been taken, the actual implementation can begin.

## 4.4 Deployment Project

For each energy consumption reduction measure, the implementation path will be developed in the probability file. As a minimum, the following aspects should be developed:

- Budgeting
- Deployment Start and End Date
- Persons and project manager concerned
- Approach and activities
- Tools required

Detailed implementation paths shall be monitored in the **Fleet Days Consultation**.

## 5 'CHECK': Monitoring and corrective actions

### 5.1 Analysis and assessment

The purpose of this energy management program is to provide a verifiable and replicable means of reducing energy consumption. In this context, it is important that the impact of measures and trends in energy consumption be periodically analyzed and assessed: monitoring. Energy consumption monitoring is a comparison of measured energy consumption with expected energy consumption and can lead to further energy optimization. The identification of new reduction opportunities is a continuous and important part of this.

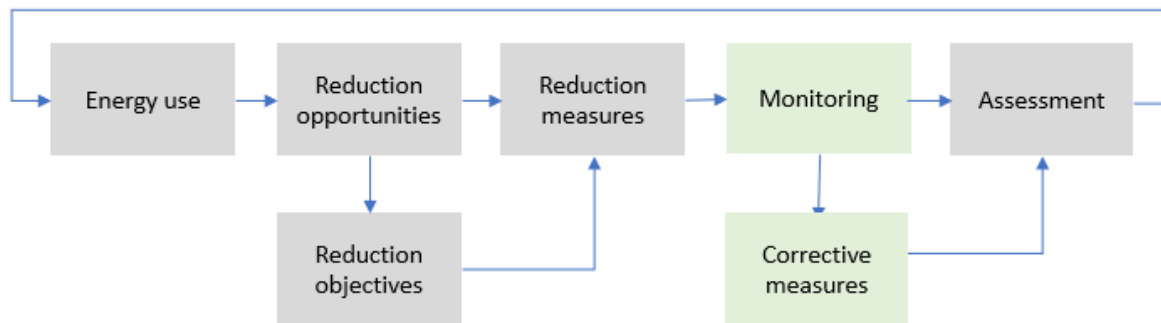


Figure 5: Flowchart Energy Management, 'CHECK' Phase

Analysis of the impact of measures is part of the 'CHECK' phase of the PDCA cycle as described in Chapter 2. This chapter describes how energy consumption and the reduction measures implemented are analyzed and monitored.

### 5.2 Measurements

DC Dredging will measure and report its energy consumption and its CO<sub>2</sub> emissions every year. The inventory and analysis of emissions will take place in the first quarter of each year for the previous year (January to December). DC Dredging only inventorizes, for level 3 at the CO<sub>2</sub> performance ladder, emissions under scope 1 and 2 according to the diagram. In any event, this report will include a trend analysis be established.

DC Dredging reports its energy consumption in addition to the absolute emissions in five emission indicators, as described in Chapter 3 of this plan. These indicators are linked to the objectives of reducing energy consumption.

1. Average emission DC Dredging
2. Average office and yards emissions
3. Average emissions from ships
4. Electricity purchases
5. Average transport emissions

### **5.3 Method of measurement**

DC Dredging ‘measures’ its energy consumption based on data provided by suppliers (invoices and annual summaries). This is how DC Dredging does a natural measure of energy consumption. When there are opportunities to improve the accuracy of the measurement system, the possibility of introducing a better measurement system will be examined.

### **5.4 Estimated emissions**

The expected emissions, related to one of the five emission indicators, are: the emissions of the previous period (base year or reference period) reduced with the expected impact of the energy consumption implemented reduction measures. For each energy consumption reduction measure, an expected reduction in implementation is defined and documented in the probability file.

### **5.5 Measured emissions**

The actual energy consumed, and emissions produced shall be measured and reported at half-yearly intervals. This reduction will be related to one of the five emission indicators listed in Section 5.2 and will be recorded in the probability file.

### **5.6 Expectations Review**

By comparing the measured emissions with the expected emissions, DC Dredging can monitor whether the energy-reducing measures have the desired effect. Unforeseen abnormalities will be reflected in this way. If the measured reduction deviates negatively from the ex-ante expected reduction, the reason the measure does not have the expected effect should be analyzed. Monitoring energy consumption and preparing annual reports helps DC Dredging to achieve its reduction targets.



## 6 'ACT' means: Evaluation and corrective actions

### 6.1 Reporting

DC Dredging assesses and reviews the energy policies conducted on an annual basis in the Executive Board's assessment. This chapter describes the necessary input for preparing the Executive Board assessment and the various reports. In addition, energy consumption reductions in implementation measures will be assessed on their effectiveness and status of implementation, identifying any corrective actions.

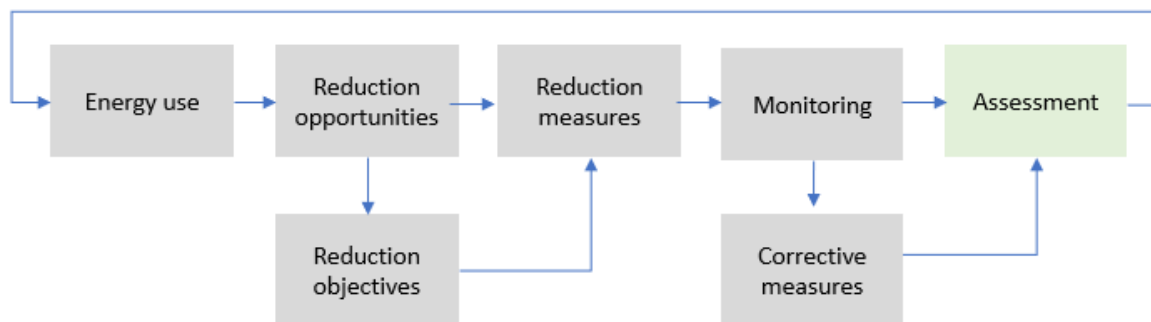


Figure 6: Flowchart Energy Management, 'ACT' phase

Analyzing energy consumption and possible reduction targets is part of the 'ACT' phase of the PDCA cycle as described in Chapter 2. As the final phase of the PDCA cycle, it also serves as an input for the first ('PLAN') phase of the next cycle.

### 6.2 Assessment of energy consumption reduction measures

The regular MT consultations will assess the impact of energy consumption reduction measures. All current measures will be discussed in the MT consultations on the basis of the opportunity file.

### 6.3 Assessment of energy management

DC Dredging's energy management program will be reviewed once a year. The results are used as input for the Executive Board assessment. The following aspects will be assessed:

- Will the reduction target for the current year be met?
- Will the reduction target for the current period be met?
- Power Consumption Reduction Implementation Status
- New Energy Consumption Reduction Opportunities
- Actuality and effectiveness of the energy management program
- Current state of energy policy
- Involvement of staff
- Communication effectiveness

## 6.4 Executive Board assessment

An Executive Board assessment is prepared annually by the MT. The Executive Board's assessment shall include the annual management review. The outcome of this assessment and the conclusions to be drawn from it are input to the action plan and/or action plan for the following year.

## **7 Tasks and responsibilities**

### **7.1 Load Balancing Determination**

For a successful implementation of an energy management program, it is necessary to agree on a clear division of tasks and assign task holders.

### **7.2 Management Team**

The management is ultimately responsible for the functioning of the program within the organization. The Finance Manager reports on the Energy Management Program in the management. Changes to the system and documentation are subject to authorization by the Finance Manager.

### **7.3 Manager**

The management of the Energy Management Program is attached to the Finance Manager. The Finance Manager is monitoring the implementation of the policy identified. Changes to the system and documentation are made through the Finance Manager.

### **7.4 Fleet day discussions participants**

The participants in Fleet Days Consultation collect energy-saving opportunities and bring them into the consultations. The consultations will identify, for each energy consumption reduction measure, who will be responsible within the organization for its implementation and execution.

## 8 Communication

### 8.1 Communication plan

Effective internal and external communication is essential and contributes to the successful implementation of this energy management program as well as of the energy consumption reduction measures. The communication plan describes how DC Dredging communicates internally and externally. Part of the communication plan is the creation of a section of the website aimed at sustainability. The communication plan shall specify, inter alia:

- Which target groups should be reached
- What is the content of internal and external communication
- How to communicate
- What intervals are communicated with
- Who is responsible for communication

DC Dredging aims to actively involve its staff in the energy issue. Through effective and targeted communication to its staff, DC Dredging aims to raise awareness and encourage its staff to participate in reducing energy needs by coming up with ideas and proposals to further reduce energy consumption. This may include both personal contribution opportunities and company optimization.