

RFQ – Request for Qualification

Renewal of the CDNI transaction system SPE-CDNI

The Central Commission for the Navigation of the Rhine (CCNR)

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The Request for Qualification consists of the following documents:

- This cover letter
- The procedural rules for CCNR contracts (annex 1)
- The preliminary draft technical specifications **for information** (which will be further detailed until publication of the Request For Proposals - RFP) (annex 2)

1. Introduction

The Convention on the collection, deposit, and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI) came into force on 1st November 2009 in Belgium, France, Germany, Luxembourg, the Netherlands, and Switzerland. The Convention applies on the entire Rhine, on all inland waterways in Germany, the Netherlands and Belgium, and on the international stretch of the Moselle in Luxembourg and France.

The Convention distinguishes 3 categories of waste: oily and greasy waste (Part A), cargo-related waste (Part B) and other types of waste, including domestic wastewater (Part C). Depending on the waste, the treatment method, responsibilities, and financing differ. The review of the 10 years of the implementation of the Convention gives a synthetic overview of the different functioning of Parts A, B and C (in French, German and Dutch: <https://www.cdni-iwt.org/autres-publications/>). **The Part A implements a unique international system.** The disposal of this waste is financed by a **disposal charge** paid by the vessel operator during the bunkering of fuel. Indirect financing in the form of a payment coupled with the supply of fuel removes the incentive for inappropriate disposal and is fully accepted by the sector. The payment of the disposal charge allows the waste to be deposited, without additional payment, in dedicated reception stations along the waterways.

The disposal charge is applied uniformly in all Contracting States and to all motorised vessels (except pleasure crafts). When the CDNI was signed in 1996, the Contracting States agreed on a disposal charge of €7.50 per 1,000 litres of zero-rated bunkered gasoil. Since 1st of January 2021, each vessel pays a disposal charge of 8.50 € per 1,000 litres (tax-free) of bunkered gas oil. The disposal charge will be increased to 10,00€ per 1000 litres on 1 January 2023.

Transactions are recorded through the SPE-CDNI (electronic payment system / Système de Paiement Électronique de la CDNI). The SPE-CDNI is operational since 2011. It was renewed and modernised in 2017 (SPE-CDNI 2.0). The SPE-CDNI is operated by the National Institutions (NI), agencies mandated by the Contracting States. The NI are also responsible for monitoring the reception stations' network. In addition to the SPE-CDNI, a module is developed for waste registration (data of waste deposit at reception stations). The SPE-CDNI must be available in four languages: Dutch, English, French and German.

It is important to emphasise that the **SPE-CDNI is not a payment system** (although the abbreviation 'SPE' suggests this), i.e., it is not a system which transfers money from one account to another. The SPE-CDNI is a system that tracks the physical transactions which are relevant for payment processes outside the SPE-CDNI. In the following, the system will therefore be referred to as **transaction system**.

The processes to be covered by the new SPE-CDNI are transactions during the bunkering process as well as operations during the deposit of waste at reception stations.

2. Objective of this RFQ

The Central Commission for the Navigation of the Rhine (CCNR) as the implementing body for the CDNI decided to initiate a 2-step tendering procedure for the renewal of the current IT system SPE-CDNI 2.0 which must be replaced by 1 September 2023. The objective of this RFQ is to **identify potential service providers for the development and implementation of a renewed SPE-CDNI 3.0**. Service providers that qualify themselves in this RFQ process will be invited to participate in the request for proposal (RFP).

Estimated duration of the contract: the initial contract shall last three to five years, and eventually renewable.

3. Procedural Rules

This first step is conducted according to the procedural rules for CCNR tenders.

Service providers that are interested in participating in this tender procedure are requested to submit a written response in English to this RFQ in PDF via E-Mail to Ms Lucia Luijten, CCNR Secretary General (l.luijten@ccr-zkr.org) and in copy to Ms Charline Daloze (c.daloze@ccr-zkr.org) no later than **Monday 22 August 2022, 23:59 hrs Central European Summer Time**. The PDF must be electronically signed.

Upon request from a tenderer, the CCNR's Market Commission will provide additional information regarding the tender. The response shall be notified to all tenderers and published on CCNR's website.

Such requests must be raised **by Friday 15 July 2022 EOB**. The tenderers must report any errors, deficiencies or discrepancies affecting the information in the tender documents at the earliest opportunity. Questions will be accepted and answered in writing only and must be sent by e-mail to the following address: c.daloze@ccr-zkr.org (copy: secretariat@cdni-iwt.org).

The CCNR will handle any communication to ensure the confidentiality of the tenders and safeguard the non-discriminatory nature of the procedure. No answers will be provided to substantive matters regarding the description of the service that are not directly related to the general evaluation process.

All costs incurred for the preparation and submission of written responses are to be borne by the tenderers and will not be reimbursed.

Applications submitted after the appointed deadline shall be ineligible for selection and will not be considered. The same shall apply if the required testimonials and information submitted are incomplete.

The examination committee shall confirm whether the files received from applicant companies comply with the qualification requirements appearing in the information pack.

An application that fails to meet these requirements will not be considered. Finally, the examination committee shall judge the adequacy of the technical qualifications, financial guarantees, and the compliance of the candidate companies whose file has not already been rejected with the other selection criteria itemised in the information pack.

It will confirm the absence of any criminal convictions on the part of the candidate companies or their managers. Based on this evaluation, the examination committee shall draw up the list of companies eligible to submit a tender. It shall be empowered to restrict the number of companies permitted to submit a tender.

All those companies that have submitted an application file shall be informed of the decisions of the examination committee by the Secretary General of the CCNR.

This RFQ shall in no way be binding on the CCNR. The CCNR's contractual obligation shall commence only upon signature of the contract with the successful tenderer. Up to the point of signature, the CCNR may cancel the tendering procedure without the tenderers being entitled to claim any compensation. This decision must be substantiated, and the tenderers notified. The tender procedure is confidential. The evaluation process and related deliberations are, however, recorded in writing and treated confidentially.

4. Planned Timeline

After the pre-qualified service providers have been identified, they will be invited to submit a full tender for the development and implementation of SPE-CDNI 3.0. Invitations to tender will be sent out by Mid-September 2022 with a 5-week period to respond. The contract with the selected suppliers shall be signed at the latest in December 2022. The new provider has to deliver and migrate the system in a timely matter so that a continuity of the transaction can be ensured after the date of turning off SPE-CDNI 2.0 on 1 September 2023.

5. Requirements for the answers of this RFQ

Answers to this RFQ must contain the following information and should follow this structure, i.e., the captions A - L. The written answers must not exceed 20 pages.

A) Stability of the company

The service provider shall submit the following general company data including sub-contractors and/or partners.

- Introduction of the company including shareholders, year of foundation, legal form, registered office, languages
- Annual results of the last three full years
- Number of employees of the last three full years

The service provider must ensure that it can deliver this project within the given time frame and shall be able to host, maintain and support the new system for at least five years.

Selection criteria are:

- Sufficient HR capacities for delivery of this project: the service provider must describe how many FTEs will be involved in the project until go-live.
- Financial sustainability: the service provider needs to prove its financial sustainability. The annual results of the last three years must be at minimum 600.000€. If the service provider does not fulfil this requirement, at least one of the shareholding companies / holding (if applicable) OR the predecessor company (if applicable) needs to fulfil this requirement.

If these two criteria cannot be fulfilled, the service provider will be excluded.

B) Effort Estimation

The contract for the renewal of the SPE-CDNI will be a fixed price project. The service provider has to submit its daily rates in EURO for this prequalification. Furthermore, a non-binding estimation of efforts based on person days shall be given for the project, covering the following categories:

- Project Management
- Detailed Design, User Stories
- Development
- Testing
- Training

C) Experience and References

The service provider must describe its relevant experience with the development of IT platforms with a web-based user interface covering multiple users from different companies within one or more European countries. The references shall cover the following aspects:

- Experience with mobile applications (web applications or native apps)
- Experience with user access and rights management
- Experience in UX design
- Experience with user interface in multiple languages
- International experience

D) Detailed Description of the Transaction Process at a Bunkering Station

The service provider shall describe in detail how the transaction process (as described in the specification in section 5.3 and 5.3.1 and as modelled in figure 12 on page 18 of the specification) will be implemented. In particular, the following questions shall be answered:

- How will the physical infrastructure of the current system (ECO-Card and terminal) be digitalised?
- How will resilience be ensured (e.g., uninterrupted availability of mobile networks cannot be ensured at all the sites at which the system will be used)?
- The service provider shall present solutions to the following three specific cases using a process modelling language (like BPMN):
 - A: The boatmaster has a device which is undoubtedly linked to the vessel and is used by the other boatmasters in case they navigate the respective vessel. The device always remains on the respective vessel.
 - B: The boatmaster has a device which is linked to him or herself. The device is not used by other persons. The device is always with the boatmaster and is not linked to one specific vessel.
 - C: The boatmaster has no device on board. He or she has to have an alternative analogue unique identifier which can be used at the GOS to safely identify the minimum required information (vessel ENI and ECO-Account holder).

E) Methodology

The selected provider must create user stories for the development of the SPE-CDNI based on the specification. The service provider shall describe its methodology of agile software development and how the CDNI Secretariat and the National Institutions will be involved in the process.

F) Architecture and Technology

The service provider must describe the architecture of the system as well as the selected technology stack.

G) Test concept

The service provider has to describe its general test concept.

H) Migration concept

The service provider shall describe its proposed approach for the migration from SPE-CDNI 2.0 to the new system SPE-CDNI 3.0. This shall at least contain a proposed schedule for the migration of static data and operational data as well as trainings for all user groups in the four required languages.

I) System operations and Hosting

The service provider must describe how the system shall be operated:

- What documentation would be provided?
- How would the system be hosted?
- Can 2nd and 3rd level support be provided?
- Maintenance: response times, methods of bug and improvement tracking, bugs reports, maintenance windows

J) Rights to the software

The rights to the software must be owned completely by the CCNR. How will this be ensured?

K) Commitment to the anticipated timeline

The service provider shall express its commitment to the anticipated timeline as mentioned in the previous section. The contract with the selected service provider shall be signed in December 2022. The service provider shall submit a draft project schedule covering creation of user stories, development, testing, training, go-live & migration.

L) Legal Requirements

The contract for the renewal of SPE-CDNI will be a fixed price project. It needs to cover – amongst other legal requirements that will be clarified during the tender process – the rules for procedure for CCNR contracts: https://www.ccr-zkr.org/files/regl-interieur/regl-relatif-aux-marches_en.pdf

The service provider shall state that these legal requirements will be fulfilled.

Furthermore, the service provider must submit a proof of public liability insurance with a minimum coverage for property damage/personal injury/property damage per claim of 1 million euros.

PROCEDURAL RULES FOR CCNR CONTRACTS

Heading 1: Legal and institutional context

Article 1

Scope of application

These procedural rules govern the call for applications, selection of tenderers, the invitation to tender, selection of the best tender and the conclusion of CCNR contracts worth in excess of 50,000 euros excluding taxes¹.

Article 2

Applicable principles

I. The adjudicating authority shall be the Central Commission for the Navigation of the Rhine, hereinafter referred to as CCNR, an international organisation with its seat in Strasbourg.

In accordance with the Seat Agreement concluded with the French Republic, this institution has a legal personality and is able to conclude contracts in respect of, and acquire, movable and immovable property.

II. The CCNR, a legal entity under international law, is not subject to the public procurement regulations of the French Republic or of another Member State. However, under these procedural rules, it takes care to observe the principles underpinning European Union public procurement regulations, namely the principles of transparency and competitive tendering. The CCNR's invitation to tender, contractor selection and contract award procedures referred to in article 1 are based entirely on these procedural rules.

Any dispute concerning the invitation to tender procedure, candidate selection and choice of contractor may only be referred to the examination committee provided for in article 5 and within 15 days from notification of the disputed decision.

The CCNR shall not defray the cost of participating in the procedure incurred by the companies in question. It shall restrict any compensation of the concerned or candidate companies to one single invitation to tender, even if the procedure is aborted.

III. Any commitment by the CCNR shall only come into being upon contract signature and relates solely to its contractor.

Generally speaking, concerning the contracts it concludes, the CCNR shall enjoy immunity from jurisdiction and execution under article 11 of the Seat Agreement. Under article 20 of the Agreement, any dispute concerning the interpretation and performance of contracts to which the CCNR is party, shall be submitted to arbitration, at the other party's request, as described in article 28 hereafter.

¹ Amended by resolution CCR 2015-I-26

Article 3

Discontinuation of the invitation to tender

For reasons it deems legitimate, the CCNR may discontinue the procedure at any time. It shall notify the reasons for this discontinuation in writing in accordance with the exact same procedures by which the information pack was made public. The candidate companies or tenderers shall be informed immediately in writing.

Article 4

Applicable contract law

For matters not governed by these procedural rules and by the list of legal clauses, the contract entered into may provide for a State's substantive law to be applied in the alternative. In the absence of any express provisions to the contrary, French substantive law, the law of the State in which the CCNR has its seat, shall apply in the alternative.

The designation of a substantive law in the alternative shall not entail the jurisdictions of the State in which the seat is located being competent for disputes concerning contract performance. These disputes shall be settled in accordance with the provisions of the Seat Agreement and by article 28 of these procedural rules.

Article 5

Examination committee

An examination committee shall be set up to select candidates, examine tenders and any claims prior to contract signature.

The composition of the examination committee shall be determined by the CCNR's administrative subcommittee. The commission shall define its operating conditions. Its members shall be bound by strict rules of impartiality and confidentiality. In discharging their duties, they must be free from any direction or influence by their country of origin. The obligations incumbent on examination committee members may be defined by an annex to these procedural rules.

Heading 2: Consultation procedures

Article 6

Enhanced procedure and simplified procedure

1) The enhanced procedure shall comprise the following stages:

1) Tenderer selection stage, described in heading 3 below, comprising:

- a) provision of information to the sector concerned by the project being pursued by the CCNR and invitation to the companies considered likely to be interested to apply for the selection procedure;
- b) receipt of applications from the interested companies;
- c) selection process of the companies invited to submit a tender;
- d) approval of the selection decision and its notification to the companies in question.

2) Contract award stage described under heading 4, comprising:

- a) invitation to the selected companies to submit their tender;
- b) examination of the submitted tenders, evaluation of the accepted tenders and selection procedure between tenders;
- c) approval of the contract award decision and its notification to the tenderers;
- d) conclusion of the contract.

The consultation and tender selection process shall take place in accordance with the timetable defined by the examination committee. The examination committee may, if so required, amend this schedule. Where necessary, the interested parties or tenderers shall be informed of these amendments.

II) The simplified procedure comprises an informal invitation to a limited number of companies selected by the examination committee as being representative of the state of the market, inviting them to submit a tender.

This procedure shall only apply to contracts worth less than 150,000 euros excluding taxes².

In this case, only heading 4 on contract award shall apply.

However, the examination committee may decide to subject a contract for an amount less than 150,000 euros excluding taxes to the enhanced procedure.

Heading 3: Candidate selection

Article 7

Information pack

An information pack for the companies likely to be interested in the work to be done or the services to be rendered, inviting them to submit their application shall be prepared by the CCNR Secretariat.

This information pack shall comprise a description of the product characteristics or services that the CCNR wishes to acquire, the qualification requirements and selection criteria.

The pack shall also include information on the legal framework of the CCNR's contracts and the anticipated timetable.

The CCNR shall distribute this information pack as required to ensure the procedure is both competitive and transparent. Specifically, it shall publish the information on its website, it may avail itself of its Member States' communication channels and may pass this information pack directly to the companies which have been brought to its attention.

Any interested company may obtain the information pack from the Secretary General and participate in the selection procedure.

Article 8

Timescale for submission of applications

To take part in the selection procedure, the candidate companies shall be required to submit their application file before the deadline laid down in the timetable set out in the information pack. This file shall include useful information on their technical capabilities and financial guarantees, as specified in the information pack.

From this stage onward, the examination committee may permit candidate companies to submit a tender as envisaged in article 15 if, having regard to the characteristics of the product or service to be acquired, the file referred to in article 7 contains the information referred to in article 13 .

In this case, the procedures for verifying the acceptability of the applications and acceptability of the tenders shall be combined.

Article 9

Role of the CCNR Secretariat

The file on the participation in the selection procedure shall be passed to the Secretary General of the CCNR in the format indicated in the information pack.

The Secretary General of the CCNR shall draw up a list of the interested companies, recording the date on which their application file was received and shall issue them a confirmation of receipt.

Article 10

Formal application file criteria

The applications must be written in a language permitted by the information pack.

The documents submitted by the candidates must be dated and duly signed by a representative appointed and delegated by the company. The supporting documentation required by the information pack must be appended.

Article 11

Information requests

Any candidate company may request additional explanations within the timescale indicated in the information pack. These requests shall be submitted to the examination committee. Each request will be answered. The response will be passed to the relevant company and published on the CCNR's website.

A candidate company must report any errors, deficiencies or discrepancies affecting the information in the information pack at the earliest opportunity.

The CCNR shall handle any communication in such a way as to ensure the confidentiality of the applications and safeguard the non-discriminatory nature of the procedure.

Article 12

Verification of fitness to tender

Applications submitted after the appointed deadline shall be ineligible for selection and will not be considered.

The same shall apply if the required testimonials and information submitted are incomplete.

The examination committee shall confirm whether the files received from applicant companies comply with the qualification requirements appearing in the information pack. An application that fails to meet these requirements will not be considered.

Finally, the examination committee shall judge the adequacy of the technical qualifications, financial guarantees and the compliance of the candidate companies whose file has not already been rejected with the other selection criteria itemised in the information pack. It will confirm the absence of any criminal convictions on the part of the candidate companies or their managers.

Based on this evaluation, the examination committee shall draw up the list of companies eligible to submit a tender.

It shall be empowered to restrict the number of companies permitted to submit a tender.

All those companies that have submitted an application file shall be informed of the decisions of the examination committee by the Secretary General of the CCNR.

Heading 4: Contract award

Article 13

Invitation to tender file

The companies selected to take part in the contract award procedure shall be invited to submit a tender complying with the invitation to tender file that shall be given to them.

The invitation to tender file must include:

- a) the tender submission arrangements;
- b) the timetable for the invitation to tender procedure;
- c) the defined criteria for evaluating the tenders.

It may also include

- d) a technical specification describing the expected functionality and any price information if such a document is envisaged;
- e) these procedural rules;
- f) a list of legal clauses and a contract award letter;
- g) various documents.

Article 14

Information requests

Any selected company may request additional explanations no later than the 15th day prior to the date referred to in article 18 below. These requests shall be submitted to the examination committee. Each request submitted shall be answered within the time limit. The response shall be notified to all the tenderers.

The tenderer must report any errors, deficiencies or discrepancies affecting the information in the invitation to tender documents at the earliest opportunity.

The CCNR shall handle any communication in such a way as to ensure the confidentiality of the tenders and to safeguard the non-discriminatory nature of the procedure.

Article 15

Form of the tender

The tender must be written in the language determined by the examination committee. It may include translations into one or more languages.

The tender pack must include:

- a) If provided for, the technical specification and the list of legal clauses, accepted, dated and signed by a person with the requisite authority;
- b) A comprehensive service offering in accordance with the technical requirements;
- c) The other information provided for by these procedural rules or by the list of legal clauses or stipulated by the examination committee.

The tenderer shall expressly state that the tender is valid for a minimum period of three months from the date of submission.

Article 16

Submission of the tender

The tenderer shall address his tender to the Secretary General of the CCNR.

Unless the examination committee decides to apply other rules, the tender shall be submitted, duly signed, sealed in an outer envelope and an inner sealed envelope containing the tender documents. It may also decide that all the documents constituting this offer must also be provided on another medium, such as an electronic medium. In the event of any discrepancy between the paper and electronic versions, the signed version of the first such medium shall be selected.

The Secretary General shall retain the unopened inner envelopes containing the tenders. He shall compile the list of tenders received, indicating the date of receipt, and shall issue a confirmation of receipt to each tendering company.

The Secretary General shall submit the tenders to the examination committee at the start date of the selection process.

Heading 5: Acquaintance with and examination of the tenders

Article 17

Confidentiality of deliberations

Unless otherwise decided by the examination committee, the tender examination procedure, deliberations and evaluation process shall remain confidential and be in writing.

Article 18

Conditions governing admissibility of the tender

To be admissible, a tender, duly signed, must have been submitted within the time-scale stated in the timetable determined by the invitation to tender pack, include information stipulated in the preceding articles, as well as all the information provided for by the invitation to tender pack, and address all the work, supplies or services covered by the invitation to tender.

Article 19

Examination of tenders

The examination committee shall examine the tenders. It shall begin by verifying the tenders' admissibility. It shall reject those tenders that do not comply with the conditions of the invitation to tender. It shall substantiate its rejection decisions. The latter shall be notified in writing to the tenders. The examination committee may accept the correction of any evidently unintentional mistakes affecting the tender.

Article 20

Evaluation of tenders

The examination committee shall review the tenders declared to be admissible. It shall then evaluate the tenders. To this end it may employ the panel of experts of its choosing.

Article 21

Additional discussions

Additional discussions may be conducted with each of the tenderers whose tender has been declared admissible. The specific purpose of these additional discussions shall be to enable the examination committee to obtain further clarification of various aspects of a tender and to correct obvious mistakes.

The examination committee may decide to begin a competitive dialogue with the companies. Within this framework, and based on the information provided by the examination committee, the latter may put forward proposals that depart from the technical specification or the list of legal clauses. The committee shall ensure that the tenders arising from these proposals are comparable.

Article 22

Criteria for comparing tenders

The tender to be selected shall be the tender that most closely matches the criteria stipulated in the invitation to tender pack.

Article 23

Selection of the tender

Upon completion of the evaluation, the examination committee shall write a report, which it will send to the Secretary General, stating the reasons why a tender has been selected on the grounds that it has been judged to be the closest match with the chosen criteria.

Article 24

Definitive decision

The Secretary General may either award the contract in accordance with the examination committee's proposal or not proceed with the contract award procedure. He shall communicate this decision to all the tenderers.

Article 25

Contract signature arrangements

Together with the chosen company, the Secretary General shall make the necessary arrangements for signing the contract.

Heading 6: Arrangements pertaining to the contract**Article 26**

Contract provisions

In addition to these procedural rules, the contract shall comprise the items mentioned in the list of legal clauses and in the contract award letter. It shall also include the tender submitted in accordance with article 15 and specified in accordance with article 21, which the tenderer has undertaken to implement.

Article 27

Place of contract

The place of contract performance shall be designated as being the seat of the CCNR.

Chapter 7: Disputes regarding contract performance

Article 28

Jurisdiction

Under the provisions of the CCNR Seat Agreement, disputes regarding contract performance, in the absence of an amicable agreement between the parties, shall be put to an arbitration commission for adjudication.

Notwithstanding, the CCNR may make a formal decision prior to the setting up of the arbitration commission specifically renouncing jurisdiction. In this case, the competent court shall be determined in accordance with the general contract provisions.

Apart from the aforementioned formal resolution by the CCNR, no provision of these procedural rules or other elements of the contract may be deemed to be a waiver of immunity from legal proceedings.

Article 29

Composition of the arbitration commission

The arbitration commission shall comprise two arbitrators, designated respectively by either party, and an arbitrator in chief designated by the two arbitrators. Should the two arbitrators fail to agree on the designation of the arbitrator in chief within three months, he shall be designated by the President of the Tribunal de Grande Instance in Strasbourg.

The parties may designate another arbitration body by their expressly declared content.

Article 30

Procedure

The arbitration commission sits in Strasbourg. It determines its rules of procedure. The language of the proceedings shall be determined by the arbitration commission.

Article 31

Law governing the dispute

In addition to the provisions of the contract, in either a complementary or subsidiary capacity, the arbitration commission shall apply general legal principles and general commercial practices.

Article 32

Enforcement of the arbitration decision

Under the terms of the provisions of the Seat Agreement, the enforcement of the arbitration decision handed down as a consequence of the arbitration process shall be subject to the regulations of the State on whose territory the enforcement shall be effected.

Article 33

Definitive nature of the arbitration decision

The arbitration decision shall be binding upon the parties and is definitive.

The costs of the arbitration proceedings shall be borne in accordance with the ruling defined by the arbitration commission.

If so required, the arbitrators may be granted advance payments. These advance payments shall be borne equally by the parties.

List of legal clauses**1. Object of the list of legal clauses**

The list of legal clauses shall specify the clauses defining the rights and obligations of the CCNR and its co-contractor.

Derogations from this list of legal clauses may be made by formal provisions in the contract.

2. Contract documents

The contractual documents of a tender shall comprise:

- the contract;
- where appropriate, the technical specifications;
- the list of legal clauses;
- the Procedural rules for prior consultation and for concluding CCNR contracts;
- the contractor's documents describing his tender;
- the documents drafted in the course of the contract as part of this information pack, in particular contract addendums.

In the event of any contradiction or discrepancies between contractual documents, they shall be prioritised according to the above order of precedence.

3. Applicable contract law

The applicable legal rules shall be defined by the contract documents.

Where these are insufficient to settle a point of law, recourse shall be had in the alternative to national substantive law referred to in the contract. Should this not enable the matter to be settled, recourse shall be had to general legal principles and international commercial custom and practice.

The contractor's or suppliers' general terms and conditions may only apply if they have been explicitly accepted by the CCNR and provided that they do not contravene any contract provisions.

4. Contractor's awareness of the terms and conditions of his involvement

The contractor shall declare that he has acquainted himself with all the contractual documents. He shall declare that he has full knowledge of the project, its purpose, the technical constraints and performance time-scales.

He shall be deemed to have all the necessary information for implementing the project at his disposal.

5. Individuals responsible for contract performance

The contractor shall designate named individuals who will be specifically responsible for contract performance, and any replacements, and shall immediately notify the CCNR to this effect in writing.

The CCNR shall appoint individuals responsible for monitoring contract performance and receiving notifications from the contractor. It shall inform the contractor to this effect.

6. Legal compliance

The contractor shall undertake to perform the contract in compliance with all the applicable legal provisions, specifically as concerns labour law, social law and employee protection regulations.

7. Contractor's independent status

No provision of the contract may be interpreted as establishing a client-agent or employer-employee relationship between the CCNR and contractor, the co-contractor being deemed to be an independent contractor having no legal connection with the CCNR other than the contract in question.

8. Duty of loyalty

The contractor shall undertake not to grant or offer any advantage, direct or indirect, upon award of the contract to any CCNR official, or to any member of a CCNR Member State delegation.

He shall also undertake not to offer or grant any illicit advantage to a third party under the contract.

The contractor shall not solicit nor accept any instruction associated with performance of the contract from any authority external to the CCNR. He shall do nothing that might be prejudicial to the CCNR and shall discharge his obligations having the greatest possible regard to the CCNR's interests.

Any breach of the aforementioned provisions shall entitle the CCNR to withdraw from the contract at the contractor's sole cost.

9. Confidentiality

The contractor shall undertake to observe strict confidentiality in respect of any information or document associated with the performance of the contract. He shall remain bound by this undertaking after the contract has been fulfilled. He shall pledge his staff to abide by this confidentiality rule.

10. Mandatory written form

To be valid, any notification, request, declaration or approval that shall be required or necessitated by contract performance must be in the written form. This document must be in the form of a letter, telex, fax or electronic message with acknowledgement of receipt. The CCNR shall not be bound by any verbal agreement.

Notifications to the CCNR shall be made to the latter's seat. Notifications to the contractor shall be made to the company's seat. All notifications must be accompanied by acknowledgement of receipt.

11. Contract amendment

A contract amendment that does not affect the object of the contract may be agreed in writing between the parties. Specifically, amendments of a technical nature or amendments of the performance time-scales may be agreed while the contract is in progress.

If an amendment does not affect the contract price, it may take the form of a simple exchange of letters.

Any amendment that supposes a price change shall require the signing of a formal addendum to the contract.

12. Calculation of time periods

Any time period mentioned in the contract documents shall be construed as commencing the day after the day on which the fact acting as the start point of this time period occurred. It shall expire at the end of the last day of the anticipated duration. Where the last day is a Saturday, a Sunday or a public holiday (either in the State in which the CCNR has its seat or State in which the contractor has his seat), the time period shall be extended until the end of the next working day.

13. Subcontracting

The contractor may not assign or transfer, nor even pledge the contract or a part thereof, without the CCNR's prior formal written approval.

Specifically, the use of subcontractors must be approved by the CCNR. The CCNR's acceptance of subcontractors shall create no obligation on its part with respect to the latter, and shall not release the contractor from his obligations under the contract, nor from his liability. At all events, the terms of the subcontracting contract must comply with the rules contained in the contract concluded with the CCNR.

14. Contractor's responsibilities and guarantees given to the CCNR

No person hired by the co-contractor can be deemed to be a CCNR agent. The contractor alone shall be responsible for any claim that such an individual might bring in relation to this undertaking. He shall indemnify the CCNR against any such action.

The CCNR cannot be held liable for any damage suffered by the contractor or his agents during performance of the contract, except where this damage is due to serious and intentional misconduct on the part of the CCNR or of its agents.

The contractor shall also be solely liable for the actions, damage, obligations arising in the context of any subcontracting contracts.

The contractor shall guarantee the CCNR and its agents in the event of actions brought by third parties or by agents of the contractor for damages caused during contract performance.

The contractor shall be solely liable for his employees.

The contractor shall guarantee the CCNR against any action or demand for payment arising from the use under the contract of products, patents, documents covered by copyright or other intellectual property rights that have not been expressly provided for in the contract's tender and accepted by the CCNR, and generally against any third party claims. Termination of the contract shall not release the contractor from the obligations referred to in these provisions.

15. Insurance or warranty

The contractor shall take out insurance cover against all contract performance-related risks and damages. Specifically, he must provide evidence of insurance cover for possible third-party damage. He shall also take out the necessary insurance cover to ensure payment of the penalties that he may have to pay the CCNR for delays, malfunction or defect in the work or services he is responsible for providing. A copy of the relevant insurance policies shall be sent to the CCNR, no later than in the month following conclusion of the contract, failing which the latter shall be suspended.

The contractor may also provide a guarantee instead of insurance cover on first demand. A request to provide a guarantee means that the contractor shall appoints a bank or equivalent who undertakes to pay the guaranteed amount when called upon to do so by the CCNR, without being able to rely on any non-performance clause.

As concerns penalties for delays, malfunction or defect in work or services, if the contract is for less than 50,000 euros including taxes, the contractor may be released from all or part of these conditions.

16. Other warranties

The contractor shall warrant that the work, supplies and services rendered comply with all the requirements in the contract documents.

The contractor shall provide the CCNR with a two-year contractual warranty. This warranty shall include the reliability and quality of services rendered as well as the proper functioning of all parts of the contract.

The contractor shall thus be under an obligation to deliver an outcome. During the warranty period, he shall undertake to repair any defects, free of charge, and to correct any deficiencies in performance.

The aforementioned warranty period shall commence on the acceptance date announced by the CCNR after the end of the trial period.

17. Progress of work, performance deadlines and trials

For work worth more than 50,000 euros including taxes, the contractor shall furnish the CCNR with a performance schedule. He shall keep the CCNR informed of progress with the work. A status report shall be provided once a month. The CCNR may take the initiative to request periodic review meetings.

The performance deadlines shall be those defined in the contract.

The contractor shall notify the CCNR when the work has been completed. The CCNR shall verify the work, supplies and services rendered. This verification shall address their compliance with the requirements in the technical specification or in other contractual documents. Acceptance reports for each delivery milestone in the performance schedule shall be made at the behest of either party.

18. Provenance of hardware and software

The provenance of the hardware and software used shall comply with the conditions stipulated in the technical specification or in other contractual documents.

This provenance shall be accurately identified by the contractor.

Only certified hardware may be used.

19. Documents

The contractor shall produce all the technical documentation required to understand and use the products, hardware or installations and software that have been made or supplied. The CCNR shall draw up an acceptance certificate for these documents.

Should all the required documents not be provided, the CCNR may make a deduction from the amount to be paid. This deduction shall be commensurate with the importance of the documents that have not been provided and may not exceed 5% of the contract value.

20. Standards

In the event of a reference to technical standards, these standards must be recognised in all CCNR Member States.

In the absence of technical standards recognised in all Member States, by default reference should be made to the technical standards recognised in France.

21. Property rights

a) Intellectual property rights

In the absence of any formal and written agreement to the contrary, all intellectual property rights and other exclusive rights pertaining to any element that has been designed, developed or collated as part of the contract shall become the CCNR's exclusive property, subject to the existence of rights pre-dating the conclusion of the contract.

The CCNR may use, reproduce, transfer, unconditionally and without restriction, all those items created by the contractor to make the product or service that is the object of the contract, and which have become its property under the provisions of the contract.

Concerning those parts of the product (hardware, software, etc.) which are not peculiar to it but in respect of which the right of exploitation has been acquired by the contractor, or which have been designed by him separately to the manufacturing of the product, the CCNR shall acquire a right of use in accordance with the following conditions. The contractor shall ensure that this right of use (concerning patents, licenses, etc.) shall allow the full and uninterrupted use by the CCNR of the product that is the object of the contract.

Should, under the above provisions, the CCNR not acquire ownership of the inventions arising from, developed or used during performance of the contract, this provision shall be stipulated in the tender and appear explicitly in the contract agreed between the CCNR and the contractor.

In any case, the contractor shall be bound to notify the CCNR of the knowledge acquired in the course of performing the contract, whether or not the knowledge has resulted in the filing of a patent.

Should the contractor use items protected by intellectual property rights or other exclusive rights, whatever they may be, he shall, without any further costs to the CCNR other than those expressly envisaged in the contract, obtain from the holders of the intellectual property rights or other exclusive rights, the appropriate authorisations to use, modify or publish these items, and furnish proof of these authorisations to the CCNR.

The contractor shall hold the CCNR harmless against any third-party claim arising from the use, in the product or service to be rendered, of any item protected by intellectual property rights or other exclusive rights, including software. The aforementioned obligations shall remain in place after the end of the contract.

The contractor shall guarantee the CCNR against any claim relating to the exercise of the intellectual property rights associated with performance of the contract.

b) Material property rights

The products, equipment and installations produced in performing the contract shall become the full and exclusive property of the CCNR according to the relevant arrangements, unless there are any express contract provisions to the contrary. Full ownership of all equipment will be acquired on the commissioning date.

22. Delays or defects

The contractor shall be liable for any performance delays, unless the latter are attributable to the CCNR or to force majeure. In the event of such a delay attributable to the contractor, the CCNR shall be entitled to demand the following penalties for late completion:

- 15 days delay 5 %
- 1 month delay 10 %
- 2 month delay 20 %
- 3 month delay 35 %

(corresponding to the purchase price including taxes).

These amounts may be amended by the contract.

After commissioning, a defect in the products, hardware or installations resulting in inoperability shall entitle the CCNR to compensation as defined by the contract. By default, this amount shall be 1% of the contract price including taxes for each day of idle time. In the event of malfunctions involving only partial non-use, the compensation shall be a fraction of the aforementioned amount commensurate with the seriousness of the hindrance to use.

23. Staff training and technical support

Depending on the arrangements defined in the technical specification, the contractor shall be required to train the staff whose task it will be to use the products, hardware or installations.

For a period of 5 years from the date the installation is received, the contractor shall be bound to provide, at CCNR's request, the technical assistance required for normal use of the work, supply, or service. These services shall be financed by the total price provided for in the contract.

24. Contract termination

I. The contract may be terminated by the CCNR due to the contractor's fault in the following instances:

- discontinuation of the contract by the contractor; this abandonment shall result from a declaration by the contractor or by the absence of more than 3 months of work, as evidenced by the non-communication of information on progress with the work;
- a delay of more than three months;
- unauthorised subcontracting;
- absence of measures, for a period exceeding three months, enabling the serious problems or malfunctions affecting the installations to be brought to an end;
- serious disruption to the enjoyment of the product or service that is the object of the contract as a result of the rules pertaining to the patents and patents or licences;
- seriously inadequate outcomes compromising the normal use of the product or service that is the object of the contract;
- fraudulent or seriously illegal acts on the contractor's part;
- liquidation, receivership or insolvency of the contractor;
- debarment affecting the contractor's ability to exercise the professional activity in question.

Termination shall be pronounced in writing after formal notice has been served.

In this case, the CCNR shall draw up a liquidation statement. Debited to the contractor, the CCNR shall be entitled to charge:

- advance payments to be reimbursed;
- penalties to be paid;
- expenses arising from re-awarding the contract at the contractor's risk and expense for the unperformed part of the contract;
- losses suffered as a result of the ending of the contract.

The CCNR shall credit to the contractor the value of those services rendered that are usable.

Should the contract be cancelled, the CCNR shall also be entitled to demand that the contractor transfer full title to services rendered and take any protective measure.

Should the object of the contract entail the use of patents belonging to the contractor, the latter shall be bound, notwithstanding the termination, to allow their use by the CCNR or its beneficiaries for the object of the contract. If the contractor is only the licence holder for the aforementioned patents, he shall be bound to grant a sub licence for the object of the contract, or to take all such measures such that this sub licence can be granted to the CCNR or its beneficiaries.

II. The CCNR may cancel the contract without fault of the contractor. In this case, it shall be required to pay him appropriate compensation, taking account of all his outlays and the loss of earnings he has suffered, to the exclusion of any other compensation or penalty.

25. Insolvency, bankruptcy or liquidation

Should the contractor be declared bankrupt, be put into liquidation or become insolvent, the CCNR may, without prejudice to other rights and remedies, immediately cancel the contract. The contractor shall be bound to notify the CCNR immediately of any of the aforementioned events.

26. Other difficulties

Should the contractor encounter difficulties in performing the contract, he shall inform the CCNR thereof immediately.

The contractor shall be bound to notify the CCNR of any change in his situation relevant to the performance of the contract (change affecting the company's legal form, change in individuals in positions of responsibility, geographical location of the services, etc.).

27. Advances and payment

The contract may differentiate between the product or service purchase price and the operating and maintenance price.

Purchase price

Each payment must depend on the satisfactory completion of one stage of the project and on its formal acceptance.

The payment of advances on the contract price shall be concluded prior to the signing of the contract and is to be mentioned in the contract. Advances may not exceed 50% of the contract amount. 25% of the balance shall be settled upon commissioning and 25% after final acceptance.

Maintenance price

This price shall be agreed in the contract.

Payments shall be made by transfer to the contractor's designated bank account.

Should the CCNR be late in paying the agreed amounts, the contractor shall be entitled to interest on late payment. This interest shall be due 30 days after the date the payment request was received, provided that the latter complies with the agreed time scales and the arrangements defined above. The interest rate for late payment shall be 4%.

28. Settlement of accounts

All payment requests and settlements shall be the subject of a summary upon final acceptance.

29. Prices

Prices shall be deemed to be all-inclusive and fixed. They shall be expressed excluding VAT then including VAT. They shall include all fiscal and parafiscal charges and other such charges on the contract's work, supplies and services. They shall be all-inclusive, remunerating all contract products and services. They cannot be amended. No surcharge will be accepted.

They shall include all the licences and fees payable for use of the intellectual rights.

30. Operation and maintenance

The contractor may, where appropriate, conclude an operating and maintenance contract with the CCNR in accordance with the arrangements stipulated in the technical specification and the contract. This contract shall be subject to the rules of this list of legal clauses.

31. Settlement of disputes

The procedures, functioning and decisions of the arbitration body shall be defined by articles 29 to 31 of the Procedural rules for CCNR contracts.

Should a dispute arise in connection with the interpretation or performance of the contractual commitments, the CCNR and contractor shall do their utmost to resolve the difficulty amicably.

Disagreements that prove incapable of resolution in this manner within 60 days shall be settled by arbitration in accordance with the provisions of article 28 et seq of the Procedural rules for CCNR contracts.

However, the CCNR may make a formal and express decision renouncing its immunity from jurisdiction. In this case, the competent jurisdiction shall be the Tribunal de Grande Instance in Strasbourg.

The composition of the arbitration commission shall be in accordance with article 28 of the Procedural rules for CCNR contracts.

The Parties shall undertake to be diligent in complying with the arbitration decision. In the absence of compliance, the decision handed down as a consequence of the arbitration shall be subject to the regulations of the State on whose territory the enforcement shall be effected.



IT SYSTEM FOR CDNI

Specifications for SPE-CDNI 3.0

Version 0.3 (01.07.2022)

DRAFT

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Glossary of specification terminology:

Boatmaster: person in charge of vessel operation

ECO-Account: An account to or from which funds is transferred, within the sphere of the SPE-CDNI

ECO-Account holder: The holder of that ECO-Account is the Inland waterway transport company or local authorities (such as port authority) that also bunkers.

ECO-ID: An ECO-ID is used to identify the vessel at the time of bunkering.

GOS: Gas oil station, where fuel is bunkered.

Waste reception station: A waste reception station can be a boat, a truck or a station, where waste of the vessel is gathered.

1 Introduction

1.1 CDNI

Inland **navigation** is **one of the most environmentally friendly modes of transport**. But as with any activity, waste inevitably occurs during the operation of a vessel.

Aware of the environmental challenges for inland navigation, **six States** decided to put in place **international rules governing the collection, deposit, and reception of waste**. The Convention on the collection, deposit, and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI) came into force on 1st November 2009 in Belgium, France, Germany, Luxembourg, the Netherlands, and Switzerland. More information can be found by following the link: <https://www.cdni-iwt.org/?lang=en>

The Convention applies on the following waterways in each respective country:

Country	Region
Germany	All inland waterways intended for general traffic with the exception of the German part of Lake Constance and the stretch of the Rhine upstream of Rheinfelden
Belgium	All waterways accessible to inland navigation
France	The Rhine, the canalised Moselle as far as Metz
Luxembourg	The Moselle
Switzerland	The Rhine between Basel and Rheinfelden
The Netherlands	All waterways accessible to inland navigation

Table 1: Geographic scope of the CDNI

The Convention distinguishes 3 categories of waste: oily and greasy waste (Part A), cargo-related waste (Part B) and other types of waste, including domestic waste water (Part C). Depending on the waste, the treatment method, responsibilities and financing differ. The review of the 10 years of the implementation of the Convention gives a synthetic overview of the different functioning of Parties A, B and C (in French, German and Dutch: <https://www.cdni-iwt.org/autres-publications/>). This specification is only concerned with the payment system for Part A which implements a unique

international system. The disposal of this waste is financed by a **disposal charge** paid by the vessel operator during the bunkering. Indirect financing in the form of a payment coupled with the supply of diesel fuel removes the incentive for inappropriate disposal and is fully accepted by the sector. The payment of the disposal charge allows the waste to be deposited, without additional payment, in dedicated reception stations along the waterways.

The disposal charge is applied uniformly in all States and to all motorised vessels. When the CDNI was signed in 1996, the Contracting States agreed on a disposal charge of €7.50 per 1,000 litres of zero-rated bunkered gasoil (tax-free). It has since been raised to 8.50€ in 2021. The disposal charge will be increased to 10 € per 1000 litres on 1 January 2023.

Transactions are recorded through the SPE-CDNI (electronic payment system / Système de Paiement Électronique de la CDNI). The SPE-CDNI is operational since 2011. It was renewed and modernised in 2017 (SPE-CDNI 2.0). The SPE-CDNI is operated by the National Institutions (NI), agencies mandated by the Member States. The NI are also responsible to monitor the reception stations' network. SPE-CDNI 2.0 must be replaced by 1 September 2023 by a new system.

It is important to emphasise that the **SPE-CDNI is not a payment system** (although the abbreviation 'SPE' suggests this), i.e., it is not a system which transfers money from one account to another. The SPE-CDNI is a system that tracks the physical transactions which are relevant for payment processes outside the SPE-CDNI. In the following, the system will therefore be referred to as **transaction system**.

The processes to be covered by the new SPE-CDNI are transactions during the bunkering process as well as operations during the deposit of waste at reception stations.

1.2 Scope and structure of the specification

This document describes the design of those business processes that are to be supported by the IT system.

Furthermore, all requirements that have to be fulfilled for the development and operation of the system were specified. Organisational aspects were also taken into account.

The specifications are intended to serve as a basis for the tendering of the IT system. Detailed functional and technical questions can be clarified in a subsequent specification phase.

2 Initial situation

The initial situation is described only for informational purposes. This description should not be considered as part of the requirements of these specifications.

An **electronic transaction system (SPE-CDNI)** was introduced in 2011 for the collection of the disposal charge for oily and greasy waste.

This system is now to be renewed to implement the current technological standards.

2.1 Current stakeholders of the system

The following table shows the current stakeholders using the system:

Abbreviation	Name	Function
NI	National Institution	Supervisory authority.

NI-User	User of National Institution	User of a national institution (NI); Data receiver.
	Vessel Owner: Particulier or Shipping Company or administrative boat (firefighter/controlling authority etc.)	Owner of the vessel(s) and responsible for the administration on board.
	Boatmaster	Responsible for vessel operation.
GOS Operator	Gas oil stations operator	Operator of one or more bunker stations. Responsible for documenting the disposal fee.

The Waste Collector is an important stakeholder. However, it is not yet implemented in the SPE-CDNI system.

Table 2: Current stakeholders of the system

3 Current transaction system

The current transaction system uses a physical ECO-Card and a physical terminal as the means to document and process transactions. The processes underlying this infrastructure will be described in the following sections.



Figure 1: Currently used ECO-Card

The ECO-Card is a so-called hybrid card: The identification at the SPE-CDNI is done via a magnetic stripe or integrated NFC chip at the terminal. The terminals are dedicated to document and transfer solely transactions made within the SPE CDNI system – other transactions happening at the GOS (e.g., to pay for fuel) are recorded in terminals belonging to the station itself. The ECO-Cards are used to clearly identify a vessel. The ECO-Card is used to allocate debited fees and discharged waste to exactly one vessel.

The following figure shows a terminal used at a gas oil station (GOS):



Figure 2: Currently used terminal

The SPE-CDNI 2.0 system currently in operation originally consisted of two modules, an administration and a transaction system, which share a database in the current implementation. The third module aims to document the disposal data of the vessels in the same database.

Further information about the SPE-CDNI 2.0 can be found here: https://www.cdni-iwt.org/wp-content/uploads/2018/10/Brochure-SPE_en.pdf

3.1.1 Create an ECO-Account and request an ECO-Card

The ECO-Account is to be requested at the NI with the following data: name, email address (mandatory fields) and contact details with mobile number (optional) of the account holder, associated company (optional) and associated vessel (optional). ECO-Accounts are subordinate to their corresponding NI domain. Each digital formular is personalised to each NI, which have different requirements (e.g., payment solutions). Furthermore, the NI has to check whether the account is already registered in an NI.

The system shall generate user access data to the ECO-Account, which the relevant NI shall forward to the client.

Each ECO-Card belongs to an ECO-Account. An ECO-Account belongs to an ECO-Account holder, who may or may not be the shipowner.

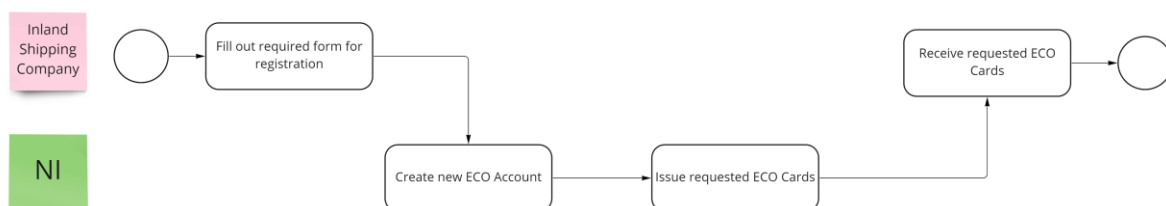


Figure 3: As-Is creation of an ECO-Account

3.1.2 Update ECO-Account balance

The transfer of a sufficient amount shall be made by the ECO-Account holder or its agent in favour of the ECO-Account concerned to the bank account of the national institution concerned for payment of the disposal fee.

An ECO-Account is not a normal bank account. Direct money transfers to or from an ECO-Account are not possible. ECO-Account holders must transfer money to their associated NI's bank accounts via normal bank payment systems, this is done independently of the SPE-CDNI. The NI's then adjust the ECO-Account balance in the SPE-CDNI according to the payments received in their actual bank account.

3.1.3 Transaction terminals

The terminals located at the gas oil stations communicate wirelessly via mobile network with the central server. The date of the transaction is the date recorded at the terminal when the transaction was made.

Transactions are normally processed in real-time, but offline transactions are also possible. Appropriate notice shall be given to GOS operator when terminals are offline for extended periods.

With each transaction, both the GOS operator and the ECO-Card holder receive a receipt (currently paper) to present to the authorities (such as the Water Police) in the event of a control. The receipts must be kept on board for 12 months. Receipts concerning either successful or unsuccessful transactions are significantly different from each other to prevent confusion.

Transactions are recorded in the SPE-CDNI even if the account balance is insufficient ("pending payment"). The different transaction states are clearly recognisable to the NI users and documented according to the processing states.

Figure 4: As-Is Update of ECO-Account balance

3.1.4 Transaction at the bunkering station

The following process model describes the current transaction process at the bunkering station for the disposal charge.

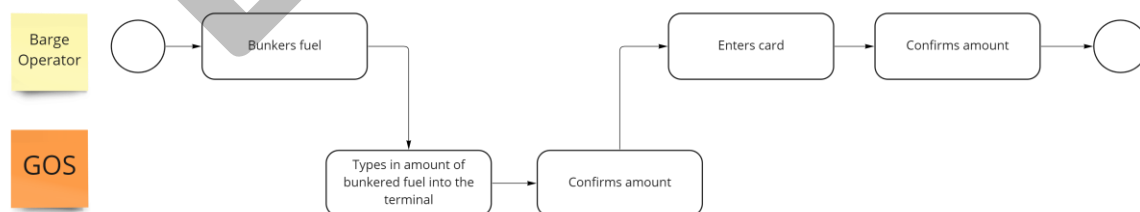


Figure 5: As-Is Transaction at the bunkering station

The tariff data is needed for the calculation of the charge to be paid, a blacklist contains all deactivated and thus not accepted ECO-Cards. An accepted ECO-Card implies a successful transaction at the terminal. A check of the ECO-Account balance is therefore not necessary.

If the ECO-Card is not on the blacklist, the transaction is accepted. Then the server must check whether the credit limit of the ECO-Account has been exceeded.

If the credit limit of the ECO-Account is not exceeded, the ECO-Account is directly and automatically debited with the outstanding amount and the transaction receives the final status "Debited". Cases in which an ECO card is not accepted usually require a special form to be filled out and signed by the boatmaster. Such cases are then handled manually by the respective NI (with administration fees for the shipowner).

3.1.5 Current waste reception module

The payment of the waste reception charge entitles the vessel to deposit oily and greasy waste free of charge at any reception station belonging to the system. On average, an inland waterway vessel requires disposal about three to four times a year.

Inland vessels submit their ECO-Card for each disposal. It is planned that all data concerning disposal are assigned to the respective vessel. The waste reception module has been developed within SPE-CDNI 2.0, but it is not in operational use.

4 Target system

The aim of the renewal of the SPE CDNI is to optimise the system based on the following principles:

1. Reduction of operational costs
2. Increase of reliability
3. Simplification of exception handling
4. Minimisation of physical infrastructure
5. Digitalisation of paper-based documents
6. Facilitation of future adaptations and extensions

The next three chapters describe in more detail which requirements will be derived from these principles.

The minimisation of physical infrastructure covers the virtualisation of the existing physical infrastructure which mainly consists of ECO-Cards and GOS terminals that are distributed by the CDNI Secretariat. The following figure illustrates the requested digital transformation.

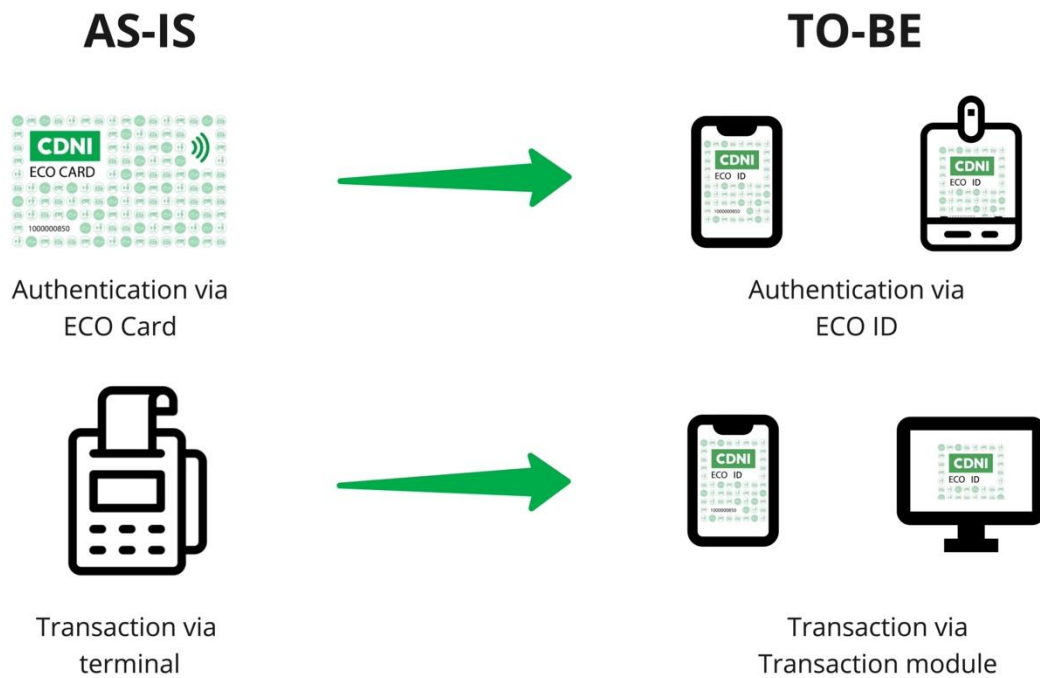


Figure 6: Comparison of As-Is and To-Be system

The supplier is requested to describe in detail how the above optimisation targets shall be reached.

In a proposed solution, the supplier needs to take account that boatmasters and GOS operators do not share phones, tablets or any other device.

4.1 Stakeholders

The stakeholders of the system for the transaction as well as for the administration of the system basically remain as they currently are. As the functionality for the waste reception will be expanded, the stakeholders for this part will be expanded.

The following figure shows an overview of the involved organisation and their stakeholders.

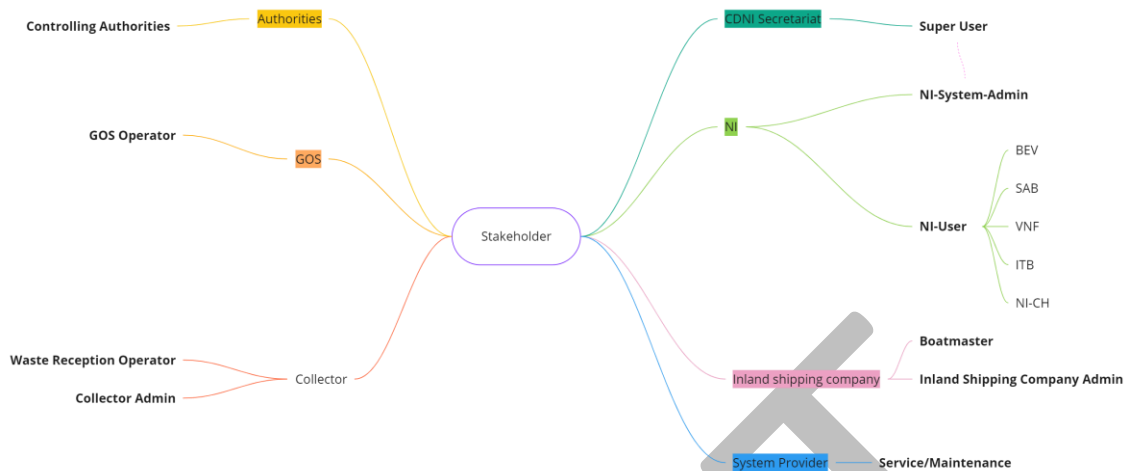


Figure 7: Stakeholders and their respective users

The following table describes in detail the different stakeholders and their functions. This table is a draft and may be subject to change.

Abbr.	Stakeholder's Name	Stakeholder's Function
	CDNI Secretariat	To be completed
NI	National Institution	
	Inland waterway transport company	
	System provider	
GOS operator	Gas oil stations operator	
	Collector	
	Authorities	

Table 3: Stakeholders overview

4.2 Continuity of services

The current system SPE CDNI will be operational until 31 August 2023. A smooth and seamless migration from the existing system needs to be ensured by the service provider. The new system needs to be operational as of 1 September 2023, at least for the modules *administration* and *transaction*. The downtime of the transaction system must be minimised and must not exceed a certain amount of hours (TBD) during the migration period. All transactions during the downtime will be executed manually following the existing manual process.

It is assumed that all relevant basic data (inter alia, user accounts, ECO-Accounts, barges, GOS, waste reception stations) will be transferred to the new system prior to the migration. During the migration the balances of the ECO-Accounts need to be transferred.

The implementation of the waste reception module is not as time critical as the implementation of the transaction module.

The supplier is requested to describe its migration approach in detail for the proposal including an assessment of the risks and risk mitigation measures.

4.3 Modular approach

The CDNI Secretariat and the national institutions follow a modular approach with the development of the new SPE CDNI system. Thus, the supplier must foresee a modular system architecture which can be extended, even by third-party service providers. The SPE shall be the core of the system, additional functionalities such as the Waste Reception System have to be attached as complementary modules. The modules must operate completely independently. In a more integrated approach, the SPE-CDNI common core could be used. For example, one could imagine using the same payment system / ECO-account to pay the disposal fee and another service for inland navigation (payment at a shore-side electricity terminal).

The supplier is requested to describe in detail how a modular approach will be supported. The integrated approach should be described as option with cost estimation.

5 Business processes

5.1 Users of the system

The following table shows the required users of the system and their access and rights within the system. This table is a draft and may be subject to change.

Active Users (Writing and reading)	Access & Rights
Super-User	<i>To be completed</i>
NI	
Inland waterway transport company	
Boatmaster	
GOS Operator	
Collector	
Waste Reception Station	
Passive Users (Reading only)	Access & Rights
Controlling Authorities	<i>To be completed</i>

Table 4: Access rights of users

5.2 Administration

The administration system is a database application that includes all functionalities regarding the management of administrative data, such as ECO-Account holders, gas oil stations (GOS), vessels, disposers, waste reception, and the management of ECO-Accounts (including account balances).

This system has an app-based user interface that is accessible via a mobile device as well as via a standard web browser on a computer at the GOS station (web-responsive).

Create ECO-Account

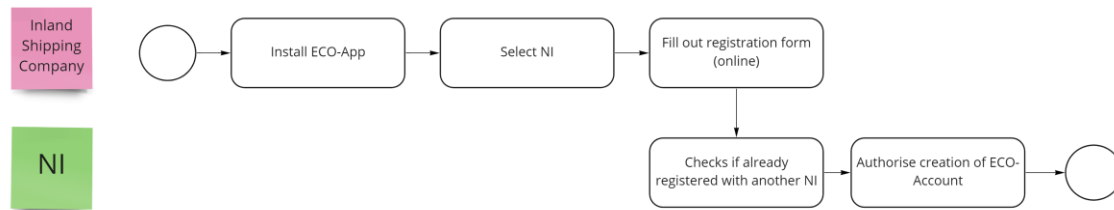


Figure 8: To-Be Creation of an ECO-Account

In the first process, the Inland waterway transport company installs the ECO-App and selects a national institution (NI). In the next step the company fills out the registration form online, so no paper-based processes are required. The Inland waterway transport company is invited to provide at least the following data:

- Name, email address (mandatory fields)
- contact details with mobile number (optional) and postal address
- associated company (optional)
- associated vessel(s) (ENI-number, vessel type) (mandatory fields)

Other data can be requested by national institutions. As such, the process of creating an ECO-Account can vary between the different countries. National institutes must be able to change the respective registration processes by themselves in order to allow for a quick update.

On the request of the NI, the SPE-CDNI-System creates then an ECO-Account for this user type. ECO-Accounts are subordinate to their corresponding NI domain. When a new ECO-Account is set up, the SPE-CDNI system checks whether the holder already has an account with another NI.

Creation of a new ECO-ID (in the previous system called ECO-Card):

ECO-IDs substitute the previous ECO-Cards. As such they are used to identify a vessel whilst paying for the disposal charge. The Inland waterway transport company creates a new ECO-ID for an existing ECO-Account after successful authentication. The ECO-ID always consists of the ENI of a vessel. The new ID is then made available to the boatmaster (e.g., by e-mail or SMS), who can log in with the access data (user name and password) via the ECO App.

ECO-Account holders can view data associated with their account, i.e., the current account balance, registered ECO-IDs and transactions.

Accessing the ECO-Account data by the account holder

There may be more than one ECO-ID associated with an ECO-Account, as more than one vessel can be assigned to an ECO-Account. Therefore, it should be possible for the ECO-Account holder to filter the displayed data (e.g., transactions) according to the respective ECO-ID.

Update ECO-Account balance

The starting trigger for an update of the account balance is the transfer of money from an ECO-Account holder to a NI using a bank or another payment provider. Since the CDNI system is not a payment system, this happens outside of the old and the newly developed system!

To update the ECO-Account the NI selects the appropriate ECO-Account first and enters then the amount transferred to NI. The SPE-CDNI System updates then the account balance for the respective ECO-Account. As a result, the account balance increases for the ECO-Account, the SPE-CDNI is informed and the ECO-Account holder gets a notification via mail.

Create a GOS account

NI users can create a GOS operator Account with the following data:

- name and contact details of the GOS operator (mandatory fields)
- associated company (optional)
- associated supply stations (one is mandatory, it must be possible to specify more than one; supply stations can be stationary and/or supply vessels, it is mandatory to specify contact details for each station if more than one is specified)

GOS accounts are subordinate to the corresponding NI domain.

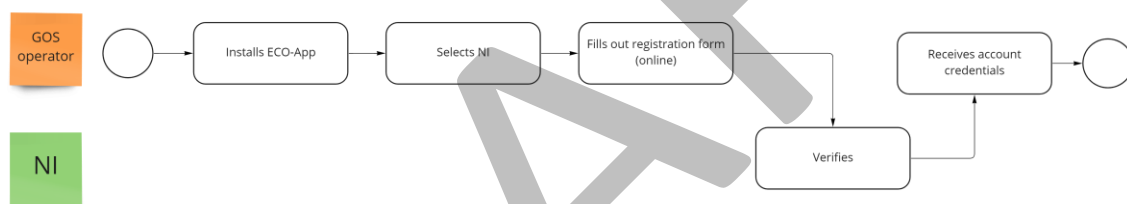


Figure 9: To-Be Creation of a GOS account

Updating GOS account

In the new system version, the GOS operator can update the data regarding the station independently.

GOS operators can view the data associated with their GOS account, i.e., their assigned transaction module as well as the transactions registered at this transaction module on the server.

Updating the data associated with the GOS account holder:

- Name,
- contact details
- password
- company
- supply stations/supply vessels

Tariff changes

The applicable disposal charge shall be configurable in the system only by the super-user. The configurability of this system parameter shall include a release date and time. At the due date of a tariff change, the update of the tariff shall apply to all future transactions.

5.3 Transactions

The transaction system is responsible for registering the transaction process. Through an app-based application on a mobile device, the transaction can be carried out. The mobile devices located at the gas oil stations communicate wirelessly with the boatmaster's mobile device as well as the server. The data is transmitted contactless through NFC technology or other similar technologies (e.g., scanning of QR code). The date of the transaction is the date recorded at the time of the transaction at the station.

Transactions are normally processed in real-time, but offline transactions must also be possible. Nonetheless, an internet connection must still be guaranteed at some point during the next days, so that buffered transactions can be uploaded and processed.

With each transaction, both the GOS operator and the ECO-Account holder receive a receipt (electronic form) to be able to present it to the authorities (such as the water police in Germany) in the event of an inspection. Alternatively, authorities may receive a read-only access to the system, thus allowing a remote inspection of receipts. Receipts concerning either successful or unsuccessful transactions must be significantly different from each other to prevent confusion – accompanied by warning signals if the user selects so.

Even if the account balance is insufficient, transactions should be recorded in the SPE-CDNI. The different transaction states must be clearly recognisable for the NI users and documented according to the processing states. It must be possible for the NI user to display the last transactions of a terminal.

Transaction at the bunkering station

When paying at the bunkering station, the bunkering is done first. At the station, the boatmaster displays his or her unique identifier and the GOS operator scans it and types in the amount bunkered. The boatmaster verifies this. The digital handshake is conducted by scanning the mobile devices.

The NI and ECO-Account holders can set an alert to be sent when the amount XXX has been exceeded, which can also be selected by the user.

There has to be the possibility to use a device dedicated to the vessel which is used by the current boatmaster and also to use a device dedicated to the boatmaster. In both cases the ENI-number is the minimum required information.

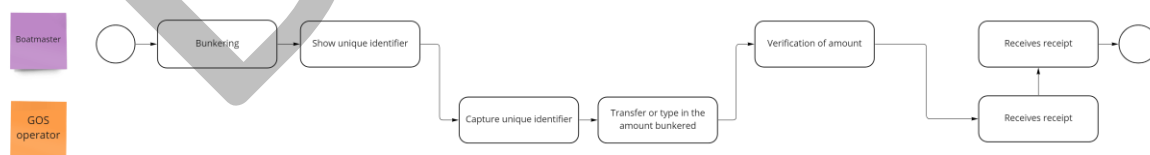


Figure 10: To-Be Transaction at the bunkering station

Monitoring transactions

Every NI user must be able to view all transactions in the domain of his/her NI. In addition, the NI user must be able to search specifically for certain (individual) transactions within his NI domain. It should be possible to filter and sort the displayed data lists by status, ECO-Account or GOS account.

Reporting

The currently available catalogue of predefined report queries must still be available. Table below lists these report queries, details of the layout are defined at the beginning of the project. The NI user must be able to select from this catalogue to create a report. The NI user can only request reports on data to which he/she has access authorisation. If desired, the output evaluation is exported for further use outside the system in pdf and csv or xls format.

This table is a draft and may be subject to change.

Report	Explanation
Transactions by NI	<p>This report provides an overview of the number of successful as well as rejected transactions, and the details of bunker quantities and disposal fees, depending on the NI.</p> <ul style="list-style-type: none"> - Parameters: Date (from / to), transaction type. - Output is grouped / sorted by transaction type and sorted by transaction end date, transaction country and transaction ID. - A report on all NIs must be possible but may only be retrieved by the Super-User.
ECO-accounts by NI	<p>This report provides a summary overview of all ECO-Accounts per NI with the following details: ECO-Account number, status, ID and name of the account holder, NI affiliation (country), account balance.</p> <ul style="list-style-type: none"> - Parameters: Date (from / to), account balance (checkbox whether only ECO-Accounts with negative account balance or all ECO-Accounts are evaluated). - Output is sorted according to the date of the last account balance change. On the first page only a summary is displayed. The ECO-Accounts are listed on the following pages. - A report on all NIs must be possible but may only be called up by the super user.
Digital ECO-IDs	<p>This report provides details on digital ECO-IDs, such as associated account holders, date of issue, date of last status change, allocation to a vessel if applicable.</p> <ul style="list-style-type: none"> - Parameters: Account holder ID / ECO-Account number / digital ECO-ID number, only active digital cards (checkbox), only cards assigned to a vessel (checkbox). - Output is sorted by date of issue or vessel ID, if the corresponding checkbox is set.
GOS by NI	<p>This report provides an overview of the number of transactions, total bunker quantities per GOS.</p> <ul style="list-style-type: none"> - Parameters: Date (from / to), GOS-ID (optional). - Output is sorted by GOS-ID and Terminal-ID

Terminal-Apps by NI	<p>This report provides an overview of terminal-Apps (used) with number of transactions, total bunker quantities, total disposal charges per terminal.</p> <ul style="list-style-type: none"> - Parameters: date (from / to), GOS-ID, Terminal- ID (optional). - - Output is sorted by terminal ID
Negative accounts	<p>This report provides all ECO-Accounts that have a negative account balance.</p> <ul style="list-style-type: none"> - Parameters: Credit limit (only overdrawn accounts are output), Amount limit. - The ECO-Account number is displayed, the corresponding NI, the ECO-Account balance.
Inactive Terminal Apps	<p>This report provides all terminal-apps (used) that have been inactive for a set number of days.</p> <ul style="list-style-type: none"> - Parameters: Number of inactive days - Output is terminal ID, GOS ID, date of last use - Output is sorted by terminal ID
Transactions by vessel type	<p>Disposal fees / revenues per vessel type (optionally for individual vessel types and all vessel types in total [incl. vessels to which no vessel type is assigned]). With such a report, the revenues of freight transport and passenger transport can be determined separately from each other.</p>
Vessel lists	<p>This report provides all vessels for which a digital NI-ECO-ID has been issued (optionally for individual vessel types and all vessel types in total [incl. vessels to which no vessel type is assigned]).</p>
Overall evaluation of the digital ECO-IDs	<p>This report provides all digital ECO-IDs that have been issued by an NI with the relevant information. Optionally sortable according to certain criteria (e.g. vessel name, vessel type) as well as according to the different statuses (active, inactive, blocked, etc.).</p>
Overall evaluation of the disposal operations carried out	<p>This report provides all disposals carried out by collection point, and disposers within the jurisdiction of a NI</p>
Overall evaluation of the disposal operations carried out	<p>This report provides disposals carried out per vessel, digital ECO-ID or ECO-Account. Only those NIs that have issued digital ECO-IDs or set up accounts for this vessel are authorised to access the report. The disposals in all contracting states are shown.</p>
Overall evaluation of the available e-mail addresses	<p>NIs should be informed of the email addresses available in the system in list form.</p>

Table 5: Reporting standards

The NI user enters an individual report request based on all the data available to him. If desired by the NI user, the report is exported for further use outside the system. The catalogue of standard report

requests should be extendable by individual report requests. The NI user should be able to decide whether a report request is only accessible to him/her, to all NI users in his/her domain or to all NI users across domains.

In addition, the data extraction system should be simple and efficient and allow statistical analysis.

5.3.1 Exceptions

Validation of ECO-ID failed

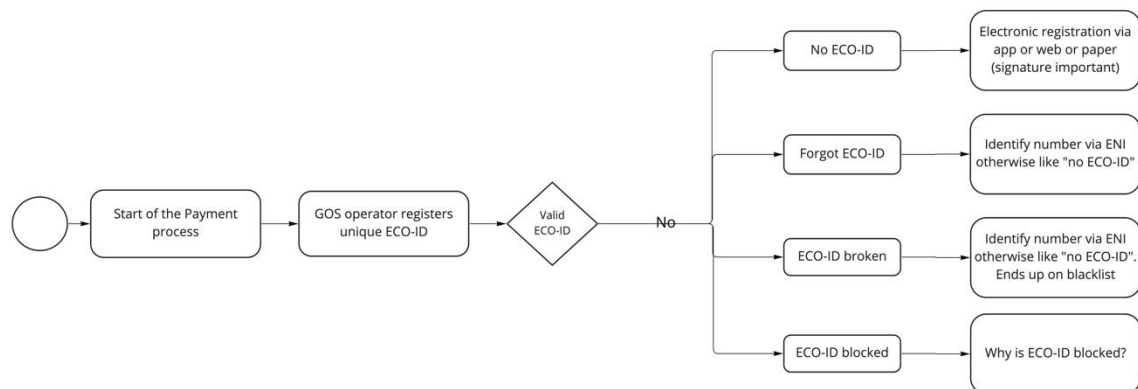


Figure 11: To-Be Validation of ECO-ID failed

The ECO-ID is created when the account is opened and must be shown when bunkering. If the ECO-ID cannot be validated, this is because the vessel does not yet have an associated ECO-Account. In this case, electronic registration operates via the app or via web or paper-based (signature important).

If the ECO-ID is forgotten, the identification number can be identified via the ENI number, if this also cannot be determined then as "no ECO-ID".

If the ECO-ID is broken, i.e., the app cannot be opened, the number can be confirmed here via the ENI number, otherwise the path "no ECO-ID" applies. The vessel will end up on the blacklist.

If the ECO-ID is blocked, this must be clarified. Then the ENI number must be determined again, if this is not possible, the path "no ECO-ID" applies again.

The boatmaster has no digital device

It has to be assumed that some boatmasters do not have a digital device on board. Thus, it must be possible to present an analogue ECO-ID in some form to safely identify the ECO-Account holder and the vessel.

The GOS has no digital device

Some GOS may not have a digital device to process the transaction. In such a case, it must be possible to document and report the transaction in an analogue manner.

Transaction Offline

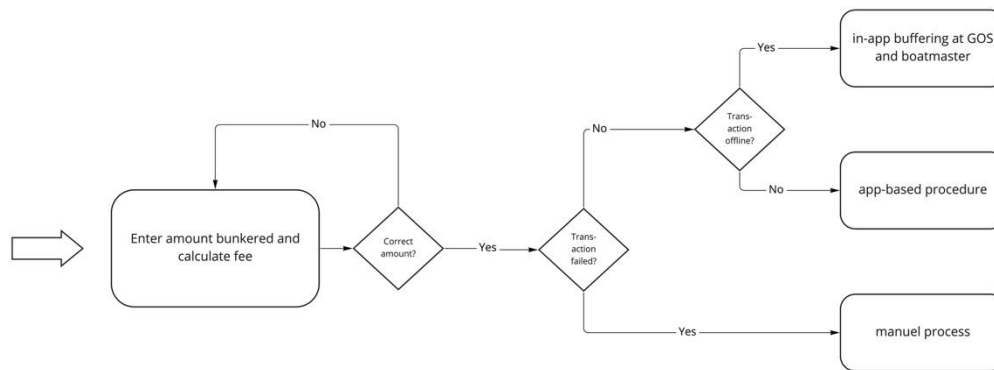


Figure 12: To-Be Transaction Offline

The amount to be paid is entered and confirmed by the GOS operator and the boatmaster. If the amount is confirmed but the transaction fails, the manual process follows. If the transaction has not failed but the devices are offline, e.g., due to a missing internet connection, there is the possibility to perform the transaction offline, which is then buffered in the app until an internet connection can be re-established.

Debit account balance

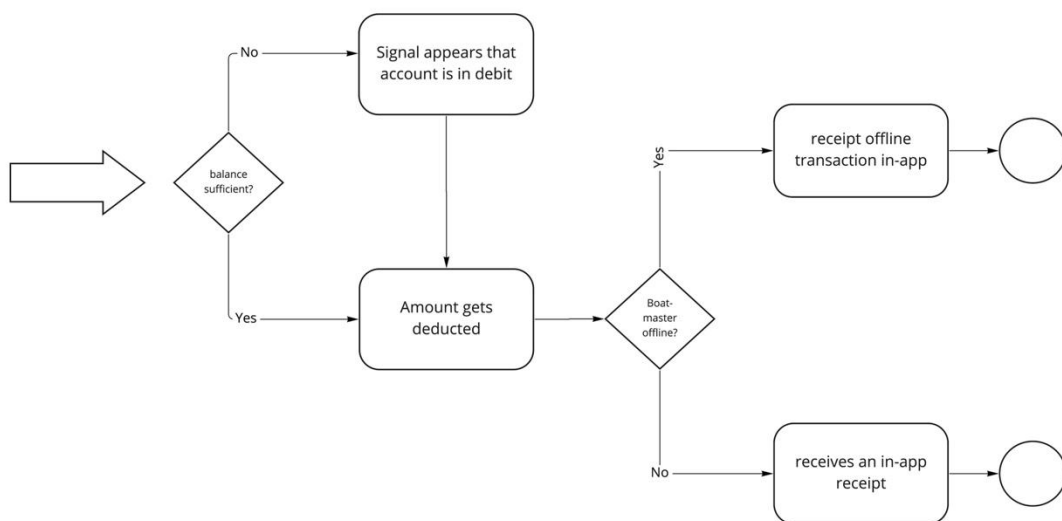


Figure 13: To-Be Debit account balance

If the account balance is not sufficient, a signal indicates that the account is in debit. Nonetheless, the amount will still be deducted normally (may be subject to change). If the balance is sufficient, the amount is deducted. If the boatmaster is offline, the receipt is created offline via an in-app transaction. If the boatmaster is online the transaction proceeds regularly and the boatmaster receives the receipt after the transaction in-app.

5.4 Waste Reception

Create Role of Waste Reception Operator in App

Every time a vessel disposes waste, the data is to be recorded and subsequently made available to the authorised parties (e.g., the vessel, the shipping company, the National Institution, the reception station, the disposal company). This is to be an important step in a concept for keeping electronic oil log books. This functionality is to be developed as a separate SPE-CDNI module.

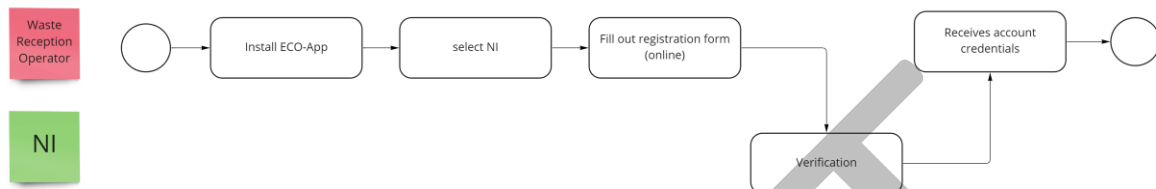


Figure 14: To-Be Create role of Waste Reception Operator

The waste reception module is used to record data on the waste delivered per vessel at the waste reception stations. In the future, the waste reception module is to replace the documentation previously kept in paper form in the form of oil control books. This is subject to legal developments but should be technically possible. The data should be processed in real-time and be available to all authorised persons. Offline transactions must also be possible.

Waste reception process

The data on the discharged waste is recorded in the system per vessel and waste type and is not transmitted to the NIs. The NIs can view the data in the system and generate appropriate reports.

5.4.1 Waste Reception

To register a waste disposal, the reception station has to enter the ECO-ID (blocked, expired or deleted ECO-IDs are not displayed. There will be a remark, if such an ECO-ID is entered.)

Exceptionally it will be possible to continue without an existing ECO-Account. Therefore, the vessel ENI and the vessel type and name are both mandatory.

The Waste Reception Operator records the following data regarding:

ECO-Account:

- ECO-ID (not editable, prefilled from selection, the virtual one for the NI is selected)
- Vessel name and ENI (not editable, prefilled from selection if valid ECO-ID selected)
- Vessel type (not editable, prefilled from selection if valid ECO-ID selected)
- Period (not editable)
- Date registration (date collector)

Waste details:

- Location (choice between fields prefilled from Collector)
- Collection Type (Vessel, Truck or Station, prefilled from Collector)
- Acceptance points (choice between fields prefilled from Collector)

- Used oil log ID (text field, mandatory)
- Waste name (drop down, assigned to location, mandatory with quantity based on type):
 - Used oil in l
 - Bilge water from the:
 - Aft engine compartment
 - Forward engine compartment in l
 - Other compartments in l
 - Total in l (sum of the above three headings)
 - Other oily and greasy waste
 - Used cloths in kg
 - Used grease in kg
 - Used metal filters in no. of items and in kg
 - Used cardboard/paper filters in no. of items and in kg
 - Total used filters in no. of items and in kg (sum of the above two headings)
 - Metal receptacles in no. of items and in kg
 - Plastic receptacles in no. of items and in kg
- Rejected waste: open field (text box)
- Other remarks: open field (text box)
- An additional Add button to add a line with “Waste type” and “Volume / Amount”, max. 10 additional entries allowed

Vessel data:

- Address
- ECO-Account holder name (text field)
- Street (text field)
- Address addendum
- Postal code (text field)
- City (text field)
- Country
- Mobile phone number

After the data is entered, the Reception Station confirms the registration and saves the data within the system.

A NI-user has also the possibility to record a waste deposit.

The registration process is the same as for the reception station, but in the first step the NI has to enter the reception station ID first.

The waste data processed within the Waste Reception Module has the following processing rules:

- A waste record has no effect on the ECO-account balance
- A record can be modified / deleted by the Reception Station within e.g. 5 minutes (time period is a configurable parameter by the Waste Reception Operator, or NI-User when no Waste Reception Operator)
- A correction after this period of time can only be modified by the NI-User or Waste Reception Operator at specific request
- A correction history is part of the reception details.

- Changing ECO-IDs, vessel names in master data etc. have no impact on a Waste Reception data itself
- A record can be printed/exported as a PDF, CSV and or XML file

5.4.2 Waste Search

Users of the Waste reception module must be able to filter the data according to the following criteria:

- Registration time
- Vessel name / ENI
- Reception Station ID / name
- Waste Type
- Oil control book ID
- ECO-Account / ECO-ID
- Acceptance point

Displayed data will be different according to the user:

- Super-User: see all data globally
- NI-User: see all data related to their account holders, to their Waste Reception Operators
- Waste Reception Operator: see all the data related to their Reception Stations
- ECO-Account holder: see all registered data assigned to his/her ECO-IDs
- ECO-IDs holder: see all registered data assigned to her/his ECO-ID

The data can be exported in the known formats: CSV (can be processed by Excel) and XML for external IT backend systems.

5.4.3 Summary

In conclusion, the ECO-ID from the SPE CDNI system is used in three cases:

- When a vessel is bunkering fuel (transaction module)
- When a vessel is being controlled by the authorities (must provide a proof of payment)
- When a vessel is disposing its waste (waste module)

These three cases can happen under different circumstances (i.e., with or without internet connection) and with different hardware (i.e., a boatmaster with or without a phone - the GOS operator, authorities and waste reception operators are assumed to always have a digital device). As of now, it is unclear how relevant some of these exceptions are. It can be assumed, however, that almost all boatmasters do have a phone and that in most cases, internet can be accessed whilst bunkering or disposing of waste. Exceptions will most likely occur in cases where the GOS or waste reception is a mobile station or truck. Here, in case of lacking internet access some difficulties may arise in the provision of a receipt to the boatmaster. It is highly desirable to eliminate the need for additional hardware or manual processes (e.g., by filling out forms). Consequently, potential software providers are encouraged to think of solutions which may help to remedy such issues.

6 Further system requirements

This chapter contains further system requirements that complement the business process-based requirements from the previous chapter.

6.1 User Interfaces and Usability

The user interfaces of the IT system must be user friendly and intuitively operable (e.g., following the standard EN ISO 9241). They must be accessible via a standard web browser in the most recent version. The following web browsers are considered as standard: Edge, Firefox, Google Chrome und Safari. Furthermore, all user interface which are part of the transaction processes at a GOS station when paying at the bunkering station must be accessible via mobile devices.

Each registered user of the IT system will initially have to log in with his or her access data. When logging in, the user can select the preferred language in which they would like to use the IT system. The system must save the user data so that it can be automatically applied when the user logs in again. It must be configurable per user after how many minutes of inactivity he or she is automatically logged off. In addition, the system must have a function with which the user can actively log off.

With the initial login to the system, each user must accept the terms of use and a confidentiality clause, as well as allow CDNI to process the data for internal CDNI use. The system must provide these one-time initial login conditions. Texts to be included will be provided to the software supplier no later than the implementation phase of this feature.

The access to the system must be secured by a user specific password. Guidelines for password protection (length of passwords, digits, special characters) must be able to be configured by the super-user and the technical super-user via the user administration. It must be possible to change the password at regular intervals by the ECO-Account holder himself/herself in an appropriate procedure. It must also be possible to configure the validity period of the passwords by the super-user and the technical super-user. Access control must support the principle of single sign-on.

With every log-in the user must be able to select the entry point to each functional area which is accessible to the user.

All user interfaces of the IT systems must be printable and exportable to a PDF file format. All list views must also be exportable to XLSX and CSV file formats.

All list views must be filterable per user. Filters must be able to be saved per user and reused later.

The IT system must provide a search function in each user interface.

All user interfaces of the system (web based and mobile apps) shall be fully and optionally available to each user in English, French, Dutch and German.

Further language versions of the user interfaces shall be easily producible by creating a central language file for a new language version.

6.2 User Administration

The IT system must provide a state-of-the-art user administration. User accounts must be able to be set up and managed by the super-user across domains and by NI system admins within their domain. The system must provide a list of all users sorted by criteria.

The essential personal data required to ensure on-demand access to the system's data must be mapped in the system. This includes

- First name, last name
- Contact details
- Company, role
- Start date, last access
- Period of validity of use

It must be possible to map the different roles of the users in the system. The roles must be configurable.

The access rights of users to the data stock and certain functions must also be configurable and correspond to the assigned roles. For example, an ECO-Account holder may only view data relevant to his own ECO-Account. Furthermore, since the system is used by all CDNI Contracting States, an NI user should only be allowed to view data that is intended for his NI.

It must be possible to manage access rights very clearly and easily via a graphical user interface. Changes to access rights must become active immediately at runtime of the system without the need to restart the system.

The system must record which user was logged in during which periods. It must be traceable which data the user has changed in the process.

6.3 Archiving

The IT system shall provide operational data for 2 full calendar years and the actual year within the system.

The system must contain appropriate archiving functions. The provider must create an archiving concept and describe access to archived data in it.

6.4 Reporting

The system must include a modern reporting tool with which users can generate lists, evaluations, and statistics from the database. Apart from complex statistical calculations, all reports should be available in real time.

Standard lists and evaluations must be included in the scope of delivery. The list of available predefined reports can be found in chapter 5.3..

Option (freely programmable report module): If required, the technical super-user (as well as NI system admins) should be able to create further reports independently and make them available to users via web access. The costs for such an option should be named separately.

All standard reports should be downloadable in XLSX, CSV and PDF file formats.

The provider must explain the reporting tool used in the offer and possibly take into account necessary training measures for the super-user to create their own reports in the offer.

6.5 Alerts

All messages generated by the system, for example when the credit limit of an ECO-Account is exceeded, must be displayed and visualised in the associated user interface. In addition, the user

interface must have a message window in which all system messages are displayed. It must be configurable in the system to send messages also by e-mail and push message.

The system's message system must be subject to user and role administration. For example, the message about an ECO-Account overdraft may only be sent to the ECO-Account holder concerned and the NI user group of the responsible NI.

6.6 Security

The operation of SPE CDNI requires the storage of personal data. Operations of SPE CDNI must be compliant to GDPR.

The SPE CDNI must be adequately secure. The BSI basic protection shall serve as orientation in connection with IT security. It must be possible to achieve certification according to ISO-27001, which also includes the SPE CDNI.

The system must log relevant user access to the system and the entry and modification of data.

In addition to logging user sessions with date and time, it should also be possible to save changes to data fields.

It must be configurable which data fields are monitored by the system. For example, the following information should be saved:

- User name, time stamp
- field name, old value, new value

The saved logging must be evaluable.

The system must have functions for permanent backup of the data that prevent data loss due to possible hardware failure.

The system must provide a level of security in the transmission and processing of transactions that corresponds to the current state of the art. The data in the system must be trustworthy enough to transfer money on its basis. The certification concept must be set out in detail.

The SPE-CDNI system is set up and runs in the same environment as all "Authorisation issuing / acquiring" systems. All processes and security requirements are applied to the SPE-CDNI system as described in the International Standard on Assurance Engagements ISAE3402 report.

6.7 Performance

The system shall be sufficiently fast in processing messages as well as in dialogue with users.

Response times for simple requests to the system shall always remain below one second, for complex requests five seconds shall not be exceeded.

The following assumptions are made regarding the average number of concurrent users and processes:

- 100 concurrent interactive users,
- 500 messages per minute.

Furthermore, the current SPE-CDNI has the following quantitative framework:

- 8,000 active ECO-Accounts

- 18,000 active ECO-Cards
- 450 active terminals
- 350 equipped GOS
- about 500,000 transactions per year

The IT system must be able to cope with this load and, in addition, still maintain a performance reserve of 20%.

6.8 Interfaces and integration

The SPE CDNI must be capable of exchanging data via interfaces with other systems.

It is important that existing external interfaces of the currently operated system SPE-CDNI must also be served by the offered system.

There are currently two external interfaces:

- One of them allows to increase the account balance of an identified ECO- account through an external accounting system of an NI;
- The other allows data exchange through an external management system of an NI. Supported functions are the entry, update, and deletion of master data such as ECO-Account holder, ECO-Account, ECO-ID, vessel, gas oil station or user (only as an optional sub-entity of an account holder).

The system must serve these interfaces, whereby NI's user rights must also be considered here for data protection reasons. Details of the existing interfaces will be provided to the contractor later.

7 Requirements for the service provider

This chapter contains general project management, organisational and legal requirements to be fulfilled by the service provider.

7.1 Project management

The contractor will provide a responsible and competent project manager for the implementation of the project. The project manager will be responsible for the coordination of the entire project including all possible subcontractors. The names and qualifications of the designated project manager and all members of the designated project team shall be shown in the tender, including substitutes in the case of unforeseen events.

A change in the project team during the term of the project must be agreed between the client and the contractor.

The project language shall be English.

7.2 Methodology

The IT system shall be implemented according to the principles of agile software development. For this purpose, the procedure shall be mutually agreed between the client and the contractor.

The contractor shall create user stories with acceptance criteria based on this specification and workshops with the stakeholders. The user stories must be available to the entire project team in a tool provided by the contractor. The tool shall be accessible and usable by each project team member.

The contractor will have access to the existing system to investigate in the database structure and to develop a migration concept.

The supplier shall describe its software development methodology in the proposal.

7.3 Schedule

The Contractor shall submit a meaningful schedule and milestone plan in the tender showing the individual phases of the project implementation, including contributions by the project team.

Continuity of operation must be ensured with the system renewal from 1 September 2023. In the case of a takeover of the previous system, ongoing operation must be ensured with this date; the introduction of new functionalities as well as technical innovations can also take place iteratively after this date. The schedule shall consider the offered conversion in several phases, if necessary.

7.4 Meetings and Reporting

The designated project manager must attend regular monthly coordination meetings with the client during the project duration on-site and/or in virtual meetings. At these meetings he/she will report on the status of the project covering earned value and risk analysis.

The costs for these coordination meetings shall be included in the offer.

7.5 Quality Assurance and Testing

The Contractor shall be responsible for quality assurance and sufficient testing. The Client will execute relevant tests for the acceptance procedure. The Contractor shall provide test data for these tests.

In addition to the production environment, there must be at least one test instance on which new versions of the software can be tested before they are approved for production. For error reproductions and tests of error corrections, it must be possible to import specific releases in a targeted manner. Quality assurance based on different test levels (unit tests, component tests, integration tests, API tests, UI tests, manual tests) must be ensured. A high proportion of automated tests must be ensured for fast and efficient testing of the software versions.

All tests and quality assurance measures performed by the Contractor must be documented, the following items need to be covered:

- A parts list of all delivered components with current version designation.
- A list of test cases against which functional and technical tests were performed
- A report of tests performed, including integration tests, performance and automation tests, unit and component tests.
- An updated version of the system and user documentation, incorporating recent changes.
- A list of all known bugs and limitations
- Documentation of test coverage at the contractor's respective test levels

7.6 Documentation

The Contractor shall provide a technical documentation of the system, covering:

- List of installed programmes with function description
- System and network configuration
- List of all system parameters and their settings
- Operating instructions for system applications, e.g., archiving

- Interface specifications
- Data models, field descriptions

Furthermore, a readable user manual in German, Dutch, French and English shall be provided with the IT system. The user manual shall be provided in electronic form (readable on the SPE-CDNI platform or downloadable via the CDNI website in PDF or Word). The user manual shall be declinable by each user role. In addition, a short brochure (3 pages) in the 4 languages must be provided to accompany the implementation of the system.

It must also be possible to call up online help from all user interfaces of the system, describing the respective functions of the user interface in the language selected by the user. Users could post their questions in a forum and other users could choose to be notified to receive the answer by email.

7.7 Acceptance of the System

The acceptance procedure will be based on this specification as well as the developed backlog of user stories that have been implemented. The Client's test team will perform acceptance tests which have to be fully supported by the Contractor.

Acceptance may be refused by the Client if there are significant functional restrictions that impede the operation of the IT system.

Partial and preliminary acceptances with corresponding acceptance tests can be agreed between the Principal and the Supplier.

7.8 Training

As part of its offer, the supplier shall offer an appropriate package of training and education measures (in Dutch, French and German). In doing so, the principle of "train the trainer" shall be applied, so that the supplier trains the personnel of CDNI Contracting States who are later to instruct the users of the system. The training package shall at least cover one training per NI as well as one for the Secretariat.

The education or training must relate to the following areas:

- Technical administration of the system,
- Instruction in the functional applications,
- Instruction and training for the administration of the system.

Details for the implementation of the training measures shall be agreed between the provider's project management and the client at the beginning of the project.

7.9 Migration and Deployment

Since an IT system for CDNI, SPE-CDNI, is already being used operationally, the provider shall prepare a migration concept that ensures deployment with functional continuity and without data loss. The concept shall include the equipment and software for transaction processing at the gas oil stations (if applicable, mobile terminals and ECO-IDs).

7.10 Commissioning Support

The Provider shall support CDNI staff during the last two weeks prior to commissioning and the first four weeks after commissioning to ensure an orderly and successful start-up of the IT system.

7.11 Support

The Contractor's project management, in consultation with the Client, shall ensure that competent technical support is provided during and after successful commissioning of the system during the operating hours of the IT system.

During the daily operation of the system, an operational and technical first level support shall be established by CDNI personnel, who shall be available for the support of the system users.

Should the CDNI staff require further support during the investigation of a problem, the Contractor shall ensure that a competent member of the Contractor's staff is available within a reasonable period.

Further details will be set out in the Service Level Agreement (SLA) to be agreed between the Client and the Contractor.

The bidder must describe the support concept in its bid.

7.12 Hosting

The Client shall be able to host the system through a third-party provider. However, the Contractor is asked to propose a hosting package for the system as an option.

7.13 Rights

The property rights and rights of use to the SPE CDNI must be transferred completely to the Client. It must be ensured by the Contractor that no contradictions to the aforementioned rights occur due to licensing rights of standard software used (e.g., copyleft effect). The source code of the system must be documented in such a way that further development by third parties is possible.

7.14 Ecological Sustainability

The Contractor shall aim at a reduction of the ecological footprint of the system and must describe how this aim will be achieved.
