Reporting of packaging and fuel consumption

Procurement reference number 231015

Contents

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Introduction

The work was commissioned by the Ministry of Economic Affairs and Communications (hereinafter the MEAC). The work is co-funded by the European Regional Development Fund. Within the framework of stage II of the procurement contract, the analysis and standardisation of the data compositions that the packaging and fuel reporting is based on (clauses 4.7.3 and 4.7.4 of the procurement contract) was performed, a common taxonomy was developed and aligned with the XBRL GL standard. The work completed is the prerequisite for creating the capability of state agencies to accept machine-readable data automatically.

In order to perform the activities specified in the procurement document for packaging and fuel reporting, the parties related to the reporting were involved and the following meetings and workshops were organised. The minutes of the meetings and workshops can be found in the MKM Confluence environment.

- Preparation of the workshop on the packaging sector: 9 June 2021
- Steering group meeting: 10 June 2021
- Workshop on the packaging sector: 10 June 2021
- Workshop on fuel reporting: 17 June 2021
- Steering group meeting: 22 June 2021
- Workshop on the opportunities for using the reporting of XBRL GL and individual records in accounting software applications based on the example of fuel and packaging reporting: 1 July 2021
- Steering group meeting: 08 July 2021
- Workshop on the options of XBRL GL-based reporting: 8 July 2021
- Steering group meeting: 05 August 2021
- Workshop on the classification of packaging: 16 August 2021
- Steering group meeting: 19 August 2021
- Discussion of the workshop on the packaging sector: 24 August 2021

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1. Definitions

Definition	Explanation
Packaging	A product made of any material that is used for enveloping, protecting, handling, delivering, or presenting goods during the life cycle of the goods: from raw material to a finished product and from the manufacturer to the consumer.
Packaging undertaking	A person who is packaging goods, importing or selling packaged goods within the framework of their economic or professional activities.
Packaging register	The packaging register (PAKIS) is a database that is part of the state information system for keeping records on packaging of goods placed on the market, generated packaging waste, reuse of packaging, recovery of packaging waste, achievement of recovery targets, and consumption of lightweight and very lightweight plastic carrier bags.
Plastic carrier bag	A carrier bag, with or without handles, made of plastic that is supplied to the consumer at the place of sale of goods.
Lightweight plastic carrier bag	A plastic carrier bag with a wall thickness below 50 microns.
Very lightweight plastic carrier bag	A plastic carrier bag with a wall thickness below 15 microns that is used for ensuring hygiene or for primary packaging of loose food when this helps to prevent food wastage.
Recovery organisation	A legal person whose founders and members are packaging undertakings or legal persons formed by packaging undertakings whose members, partners or shareholders are packaging undertakings, which takes over the obligations of a packaging undertaking – organises in their name collection and reuse of the packaging released in the Estonian market.

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2. Specific activities related to packaging and fuel consumption reporting

This chapter covers the issues discussed in the analysis of packaging and fuel consumption reporting and the activities completed.

2.1. Specific activities related to packaging reporting

The analysis operations related to packaging reporting are described in the sub-chapters of this chapter.

2.1.1. Bases of packaging reporting and obligated persons

The packaging reporting discussed in this document is based on the Packaging Act[1], the statutes of the packaging register[2], the classifications of the packaging register and the import forms[3], the Packaging Excise Duty Act[4], and the data submitted to recovery organisations (regulated by contracts – monthly, annual, quarterly, etc.).

The packaging reporting obligation lies on the **packaging undertaking**. This obligation arises from section 24 of the Packaging Act and places the undertaking under the obligation to constantly keep the records with respect to packaging reporting. The undertakings must keep the records of packaging based on the mass of packaging material upon releasing packaging in the Estonian market. Thus, it is important that the standard developed in the course of this work would become an integral part of all accounting software applications. Packaging undertakings (except sellers of packed goods) must collect and recover the packaging and packaging waste of the goods released by them in the Estonian market based on the rates specified in the law and cover the accompanying costs. A packaging undertaking marketing packed goods may transfer the obligation to collect and recover packaging to a **recovery organisation** based on a written contract. This means that the recovery organisation takes over the obligation of the packaging undertaking – organises in their name the collection and recovery of the packaging released in the Estonian market and submission of the reports to the **packaging register**. The interval of submitting the data of the packaging undertaking is agreed with the recovery organisation: monthly, quarterly, semi-annual, or annual.

If a packaging undertaking has failed to fulfil their obligations with respect to packaging and has not transferred their obligations to a recovery organisation, the packaging undertaking must fulfil the requirements arising from the Packaging Act itself, as a result of which it may be required to pay the packaging excise duty (in this case, the period of taxation with the packaging excise duty is one quarter).

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[1] https://www.riigiteataja.ee/akt/105052021002

[2] https://www.riigiteataja.ee/akt/108062021009

[3] https://pakis.envir.ee/pakis/main/help

[4] https://www.riigiteataja.ee/akt/116062017021

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A packaging undertaking is required, at a place of sale with an area of more than 100 square metres, to maintain records concerning lightweight and very lightweight plastic carrier bags sold and supplied free of charge to consumers and to submit the data to the packaging register.

2.1.2. Data analysis

2.1.2.1. *The AS-IS mapping from the perspective of a packaging undertaking performed in the course of workshops and meetings*

The main collector of packaging reporting is the Ministry of the Environment, which uses the packaging register to collect the data[5]. Pursuant to the Packaging Excise Duty Act, an accountable person which does not comply with the targets must submit packaging excise duty returns to the Tax and Customs Board on a quarterly basis. Analysis of the volume of the reporting through the packaging register revealed that more than 4,000 reports are submitted to the register per year, on average. Statistics Estonia uses the KK610 waste balance report to report packaging waste information, with the input data collected and submitted to Statistics Estonia once a year by the Ministry of the Environment.

At the time of conducting the analysis, the data of 2020 had not yet been fully received as the deadline for submitting the data for the calendar year established by the statutes of the packaging register is 1 September.

In 2019, 4,147 reports were submitted to the packaging register, including:

- Individual packaging reports – 110

- Packaging reports of the clients of recovery organisations – 3,989

- Packaging reports of recovery organisations – 4

- Plastic carrier bag reports – 44

For the data to be comparable, the number of undertakings submitting packaging excise tax returns in 2019 is also provided. These are the undertakings which do not comply with their targets for the recovery of packaging waste.

- Q1 2019 – 178

- Q2 2019 – 152

- Q3 2019 – 154

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[5] https://pakis.envir.ee/

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- Q4 2019 – 184

The reports submitted to the packaging register[6] show that most of the packaging undertakings use the services of a recovery organisation for submitting reports to the packaging register. This also exempts the undertakings from the obligation to submit packaging excise tax returns. In this case, the packaging undertaking submits monthly, quarterly, or annual reports (as agreed) in an agreed format to the recovery organisation. Unfortunately, all recovery organisations request reports in different formats, even though the same data must be provided, in principle. For example, different types of packaging material, the coding used differs from the coding of the packaging register. Some request data by types of packaging (sales, groups, transport), some do not. For example, we have enclosed the report forms for packaging undertakings of four recovery organisations:

- Tootjavastutusorganisatsioon OÜ[7]

- OÜ Eesti Pakendiringlus[8]

- OÜ Eesti Pandipakend[9]

- Taaskasutusorganisatsioon MTÜ[10]

All four recovery organisations collect data from packaging undertakings about the packaging materials marketed in the form of Excel tables in different formats. All four also have online portals where the data can be inserted manually. If there is an option to import the Excel table, the data are entered by the employees of the recovery organisation in the portal of the organisation. The online portals of Tootjavastusorganisatsioon OÜ, OÜ Eesti Pakendiringlus, and Taaskasutusorganisatsioon MTÜ do not include the option of electronic transmission of data. OÜ Eesti Pandipakend, which keeps the register of packaging with deposit and collects respective sales reports from undertakings, has a separate further function. The sales report can be imported into their online portal electronically, but the report can also entered manually online. These packaging are so-called goods items (reported also on the invoice or check line) and are therefore not the so-called packaging amounts accompanying the sales line. The contact persons (development manager, product manager, etc.) of all of the four recovery organisations admitted that they had not come in contact with the XBRL GL format, but they were aware of the 'Aruandlus 3.0' project and considered the development of a uniform packaging classification a very positive step. In their opinion, taking into use of the respective classification will not be accompanied by great changes in data collection, as the content of the dataset collected will remain the same. Submission

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[6] https://pakis.envir.ee/pakis/main/opendata

[7] TVO_Pakendi koondaruande vorm.xls

[8] EPR-aruande-vorm.xls

[9] EPP_PE_leping_lisa1_käitlustasud_012020.pdf

[10] ETO_Lisa-1-Aruande-vorm-3.xls

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of information in a new format to the packaging register will, however, call for extra work. They were currently not able to estimate the volumes of those works.

In the packaging reporting workshop, it was found that the current packaging reporting and reporting on plastic carrier bags largely consist of manual work. As regards to software, various different practices are used. In the case of one of the practices, the information required for packaging reporting is calculated based on sales data. In the case of another practice, packaging information is actually entered and registered in a transaction-based manner, which is surely more time-consuming for the packaging undertaking. In the case of another option used, the packaging information is linked to a material card and the number of different types of packaging can be calculated in grams or kilograms for each sales transaction.

In the course of the analysis, it was determined based on workshops and email correspondence that the majority of the software applications examined do not currently have the packaging reporting functionality. Only the solutions offered by Directo, Skriining, and BCS Itera have it in a certain form. Those software applications have a functionality which compiles the information of the packaging released to the market in connection with the sales process. The undertaking must manually submit the data in the packaging reporting self-service environment by using the information drawn up by the system.

The assessments of the value for money of different software applications differ greatly. Getting acquainted with the so-call XBRL GL data format and interfacing it with the software used is a relatively labour-extensive operation. For those software companies which participated in the 'Internet of Business (IoB) – standardising business transaction information[11]' project funded by the Connecting Europe Facility (CEF), developing the respective capability cost from 40 thousand to 150 thousand euros. Once the capability has been created in the software, adding new reports is much more work-intensive. The packaging reporting solution mainly depends on whether or not the software application has been used for keeping records of packaging at all. If the initial capability to draw up XBRL GL reports has been created and the software has been used for keeping records of packaging before, it is estimated to take 40 hours of work to add a report in an XBRL GL format that complies with the message created with this project into the software.

2.1.2.2. Analysis of data composition

The data collected in connection with packaging reporting were analysed in the course of the work. The most important object of analysis from the perspective of packaging reporting was the analysis and optimisation of the types of packaging.

For the purposes of the Packaging Act, the types of packaging include the following:

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[11] https://itl.ee/internet-of-business-standardiseerides-majandustehingu-info/

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1) sales packaging or primary packaging means part of a sales unit designated to be handed over to the end user or consumer at the place of sale. The packaging specified in clause 2 (2) 2) of the Packaging Act is also considered to be sales packaging;

2) grouped packaging or secondary packaging is meant for grouping a certain number of sales units at the place of sale regardless of whether the grouped packaging is sold as such to the end user or consumer or whether it serves only as a means to facilitate the handling of goods, or protection or presentation of goods, whereas grouped packaging can be removed from the product without affecting its characteristics;

3) transport packaging or tertiary packaging is meant for handling and transport of a certain number of sales units or goods in grouped packaging to prevent transport damage, whereas transport packaging does not include road, rail, sea and air containers.

Depending on the number of uses of packaging, the subtypes of the types of packaging are the following:

1) reusable packaging means packaging which is designed, prepared and placed on the market for re-transport or reuse within its life cycle and which is refilled or reused for the same purpose for which it was prepared;

2) non-reusable packaging is meant only for single use.

The types of packaging material are the following:

1) glass means all fused inorganic glass types which belong to Chapter 70 of the Combined Nomenclature pursuant to Council Regulation (EEC) No 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff (OJ L 256, 7.9.1987, p. 1–675);

2) plastic means polymer within the meaning of Article 3(5) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1–850) and all natural and artificial polymer-based materials in both single and multi-layer embodiment which belong to Chapter 39 of the Combined Nomenclature pursuant to Council Regulation (EEC) No 2658/87;

3) ferrous metal means steel which belongs to Chapter 73 of the Combined Nomenclature pursuant to Council Regulation (EEC) No 2658/87;

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a. non-ferrous metal means aluminium which belongs to Group 76 of the Combined Nomenclature, and other metals which are used as packaging materials and belong to Section XV (Base metals and articles of base metal) of the Combined Nomenclature pursuant to Council Regulation (EEC) No 2658/87;

4) paper and paperboard, including composite paperboard, which belong to Chapter 48 of the Combined Nomenclature pursuant to Council Regulation (EEC) No 2658/87;

5) wood;

6) other material.

Composite packaging means packaging made of two or more layers of different materials which cannot be separated by hand and form a single integral unit, consisting of an inner receptacle and an outer enclosure, that is filled, stored, transported and emptied as such. Article 6c (2) of decision no. 2005/209 of the European Commission[12] changed the procedure of declaring composite packaging. Before, composite packaging had to be declared under the packaging material which formed the majority of the packaging. Based on the new rules, all types of packaging material which the packaging consists of must be specified, unless the percentage of a specific material remains under 5%.

Pursuant to the Packaging Act, a packaging undertaking is required, at a place of sale with an area of more than 100 square metres, to maintain records concerning lightweight and very lightweight plastic carrier bags sold and supplied free of charge to consumers and to submit the data to the packaging register.

The types of plastic carrier bags are as follows:

1) lightweight plastic carrier bag;

2) very lightweight plastic carrier bag;

3) oxo-degradable plastic carrier bag.

There is currently no uniform coding in the reporting of different types of packaging. Recovery organisations ask packaging undertakings to submit reports in different formats and by using different codes.

Table 1. The classification codes used in the packaging register are based on the international waste coding classification.

waste_code	descr_et

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[12] https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=CELEX:02005D0270-20190426&qid=1630247609470&from=ET

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15 01 01	Paper and cardboard packaging
15 01 02	Plastic packaging
15 01 03	Wooden packaging
15 01 04	Metallic packaging (ferrous metal)
15 01 07	Glass packaging
OTHER	Other packaging

Until now, one code has been used in the packaging register for metallic packaging: 150104. As the European Commission will require more specific classification of metallic packaging in the future, 8-digit waste codes should be taken into use in packaging reporting:

- 15010402 – ferrous metal packaging
- 15010403 – aluminium packaging and packaging of other non-ferrous metals (currently referred to as 'aluminium packaging' based on the regulation, but the waste code name will be changed in the regulation).

The Packaging Act refers to Combined Nomenclature codes for differentiating different types of packaging material. Thus, the question of whether or not a new classification is required for packaging reporting came up in the course of the work. Analysing with the specialists of the field of Statistics Estonia, it was decided that a separate packaging classification would be used which includes all three types (type of packaging, repeatedness, and type of packaging material). Based on content, the following code could be used, for example: 1_1_**150107 Klaas_müügi_ühekordne**. The coding structure of the specific classification and the list will be specified conclusively by Statistics Estonia. A respective sample was developed as a suggestion in the course of the work[13].

The analysis of the reporting of plastic carrier bags showed that all plastic bags are included under the same code in the classification of the products. KTTY 39232990 Plastic bags and packaging (incl. cones) (except poly(vinyl chloride) and ethylene polymers). For the optimisation of the data, it would not be reasonable to add a separate classification for keeping the records of plastic bags, but the KTTY classification should be expanded by using letters or other classification. In the example developed in this project, letters a and b were added to the codes. As the final classification is approved by Statistics Estonia, the codes may still change.

1) lightweight plastic carrier bag – a plastic carrier bag with a wall thickness below 50 microns
   39232990a

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[13] Pakendi_klassifikaatori_naidis_v1_0.xlsx

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2) very lightweight plastic carrier bag – under 15 microns 39232990b

3) oxo-degradable plastic carrier bag – no longer permissible

2.1.2.3. Auditing

Based on the Packaging Act, a packaging undertaking must audit the packaging reporting after passing a certain threshold. Packaging reports must be audited in the future if the amount of the packaging released in the market exceeds 20 tons per year (until now, this obligation was applied in the case of marketing at least 5 tons of packaging per year). The less stringent rules still apply to submitting the report for 2020, which must be submitted to the packaging register by 1 September 2021 at the latest. The data composition required for a packaging audit is not more extensive than the data composition submitted by the submitter of packaging reports to a recovery organisation. Conducting the audit is much more complicated if the undertaking does not have the respective records in their accounting software. Control measurements must be performed and the estimated packaging amounts must be calculated manually. If records of the packaging are kept in the accounting software, the auditing is considerably easier. Random checks of whether the amounts of packaging matching the products are reflected accurately in the database suffice.

2.1.2.4. Proposals for packaging reporting in the accounting software TO-BE

Most software applications do not currently have packaging records directly integrated into the software.

Below, we make some proposals for organising the collection of packaging information in software applications (TO-BE). Each material card is linked to packaging types and the weight of the respective packaging type in grams or kilograms. The recipient of the report will convert them to the same measurement unit. Selling of a certain material is accompanied by information about the packaging. It is possible to obtain a report about each sales transaction for material about the amounts of different types of packaging accompanying the sales transaction. Today, undertakings have issues with obtaining packaging information. E-invoices do not currently include this information or include it a minimum extent. **This is one of the issues which must be worked on in Europe as well as in Estonia to make the information amounts the amounts and types of packaging accompanying sales transactions move with e-invoices.** In describing data compositions, it should be kept in mind that one material can simultaneously have several sales, wholesale, or transport packaging material type codes.

We make a proposal for the future perspective of packaging reporting. Undertakings use e-invoices and e-invoices come with packaging information. If the XBRL GL format is used as the format of the e-invoice, the data composition of packaging information has been described in this document. Alternatively, product-based packaging information may be received directly from the manufacturer. If the respective information is available in the information system of the company, it can be transmitted as an e-invoice, if necessary. It is also possible to draw up so-called consolidated statements by types of packaging about any period desired, which can be submitted to the recovery organisation, packaging register, or an auditor. Many undertakings are still interested in the services provided by recovery organisations, as it is

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not feasible or possible for all to independently collect and recycle the packaging placed on the market. It is important to make sure that all recovery organisations as well as the packaging register accept packaging information based on the data composition drawn up within the framework of this project. One alternative suggestion for a future perspective arose in the course of a steering group discussion. In the opinion of the author of the document, this suggestion is the most optimum one, giving the state the most comprehensive and fastest information about packaging reporting. From the perspective of undertakings, interfacing with one standard state agency would also be clearer and easier to understand that several different interfaces with private undertakings. All packaging undertakings submit their reports directly to the packaging register by using the XBRL GL format and the recovery organisation receives the packaging information of their contractual partners from the packaging register. Thus, the execution of the XBRL GL reception capability by the packaging register is sufficient and recovery organisations will not be required to do this. The XBRL GL standard would still be used for data exchange with the packaging register.

2.1.3. Standardisation and developing a common taxonomy

The work involved describing a structured and machine-readable data model for keeping the records of packaging and plastic carrier bags[14]. A classifier was suggested for classification of packaging, which is based on the classification scheme developed by Statistics Estonia for 'Aruandlus 3.0'[15]. A packaging report taxonomy was developed in the course of the work which was added to the existing 'Aruandlus 3.0' project file[16].

2.1.4. Transfer to the XBRL GL standard

The XBRL GL standard is suitable for using in packaging reporting, as XBRL GL is a system for describing economic transactions that offers a wide selection of possibilities. Analysing the XBRL GL transaction description standard revealed that the information required for packaging reporting could be submitted based on the existing standard. A data structure compliant with the XBRL GL standard has been created[17]. In the XBRL GL format, economic transactions are divided into certain transaction groups by using abbreviations (such as pj – purchase journal, sj – sales journal). Packaging information comes with sales transactions and thus, two potential methods for transmitting packaging information have been provided in the examples. First, as a sales invoice line which is a regular sales transaction accompanying by packaging information in the measurement block which enables obtaining packaging information based on the business rules described below. The other example was provided for only transmitting packaging information without reporting the specific sales transaction. In this case, an agreed keyword should be used in the **gl-bus:sourceJournalDescription** label of the XBRL GL message. In this example, the keyword **'Pakendid'** was used. In the course of a steering group discussion, an idea came

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[14] Aruandlus_30_XBRLGL_naidis_2021_pakend_energia.xml

[15] Pakendi_klassifikaatori_naidis_v1_0.xlsx

[16] AA30_taksonoomia_20210820.xlsx

[17] Aruandlus_30_XBRLGL_naidis_2021_pakend_energia.xml

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up that as other such specific consolidated reports may occur, creating a separate classification for such keywords, i.e. for the list of reports could be considered.

2.1.5. Business rules of packaging reporting

Upon receiving a report in the XBRL GL format, it is primarily necessary to check the compliance of the message sent to the data scheme of a transaction-based data message (XSD)[18]. In addition to checking the general format of the message, the business rules suggested for checking packaging reporting should also be observed in the case of packaging reporting. Packaging-related information is contained in the data block of measurements (gl-bus:measurable). The recipient of the packaging report must filter out those measurement data blocks which have the 'PAKL21' packaging classification as the gl-bus:measurableQualifier data element. This rule is also the first and mandatory rule of the business rules.

Table 2. Business rules of packaging reporting

Code of the business rule	Data element	Rule/Formula	Explanation
BR_PAK001	gl-bus:measurableQualifier	='PAKL21'	This data element must include the valid name of the packaging classification
BR_PAK002	gl-bus:measurableUnitOfMeasure	in(EN16931 code list)	The measurement unit must be compliant with the EN16931 measurement unit (Unit) code list
BR_PAK003	gl-bus:measurableID	in(PAKL21)	The code of the type of packaging must be included in the 'PAKL21' packaging classification
BR_PAK004	gl-bus:measurableQuantity	numeric	The amount of packaging must be expressed as a numerical value

2.2. Analysis activities related to the fuel consumption reporting

The sub-chapters of this chapter describe the analysis operations which are related to fuel consumption reporting.

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[18] https://www.xbrl.org/int/gl/2015-03-25/gl-framework-REC-2015-03-25.html

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2.2.1. Bases for fuel consumption reporting

This document discusses the statistical works no. 20505 and 20206 (questionnaire codes 1251, 1025, 1027) organised by Statistics Estonia in connection with fuel consumption reporting. From the perspective of fuel consumption reporting, the data are mainly collected by the afore-mentioned questionnaires, but from most of the data submitters by using the 1251 'Fuel and energy consumed' questionnaire. The analysis revealed that there is also the 1024 'Power plants' statistics report used to request information about energy consumption, among other things, but this report was not referred to in the public procurement. The entire dataset is used for compiling the energy balance of Estonia which is used by different Estonian ministries (Ministry of Economic Affairs and Communications, Ministry of the Environment) and agencies governed by those ministries (incl. the Estonian Environmental Research Centre) in their reporting. The data are also used by the environmental statisticians at Statistics Estonia and by international organisations: the Organisation for Economic Co-operation and Development (OECD), the International Energy Agency (IEA), the United Nations (UN), and the statistical office of the European Union (Eurostat).

2.2.2. Data analysis

2.2.2.1.   AS-IS mapping

The work involved mapping of the current manner of the collection of energy consumption information by undertakings. By its nature, energy consumption is an expense of an undertaking which is reported by using regular economic transactions. The taxonomy of annual reports includes the respective types of expenditure and all undertakings have this information in the monetary value. As the amount of energy consumed by types of energy, in addition to the monetary value, is also important in drawing up the energy balance, undertakings do not have this information automatically without further work. Some software applications include the option to add quantitative information, but classification of energy is not available, as a rule. If an undertaking is saving the information of e-invoices in the software, the respective reporting can be compiled without further manual work by an accountant. Proper classification of energy products may, however, remain an issue even in this case, as e-invoices also do not reflect product information uniformly and properly. For example, there is the <tariccode> e-invoice data element which should only include the taric code of one type of energy. Unfortunately, this data element is not provided in many cases and a situation in which the data element is provided but the code is incorrect is even more confusing.

None of the accounting software providers involved in the analysis were able to offer an energy consumption reporting solution.

2.2.2.2.   Analysis of data composition

The work involved analysing energy consumption reports. This information is collected by Statistics Estonia by the four questionnaires listed above.

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1) **Fuel and energy consumed 1251**

   o Questionnaire code: 12512021

   o Submitted: Once a year, the information about 2020 on 1 February 2021.

   o The questions which came up during the analysis and the discussions held. The questionnaire is fully compliant with the purpose of the public procurement. It reflects energy consumption.

   o The measurement units have been changed in the report. In the updated questionnaire, the amounts of petrol and diesel fuel are provided in litres, while tons were used before; therefore, the recipient of the report should convert the measurement units, if necessary.

   o In the course of the discussion, it appeared that the list of reasons for not consuming energy/fuel is not needed. The workshop found that this list is not necessary for data-based reporting, it was needed for manual drawing up of reports.

   o The sample of 2021 includes 4,036 undertakings.

2) **Energy 1025**

   o Questionnaire code: 10252021

   o Submitted: Once a year, the information about 2020 on 15 April 2021.

   o The questions which came up during the analysis and the discussions held. The questionnaire is partly compliant with the purpose of the public procurement – only the consumption part.

   o Several different types of transaction in one report: balance, purchasing, sales, consumption, loss. In the case of data-based reporting, collection of such reports as one report should be avoided, if possible. Energy consumption (purchasing), production, and sales should be separated.

   o The questionnaire included many different classifications: domestic consumer, boiler plants, power plants, transport, etc. Those classifications are not related to consumption.

   o The sample of 2021 includes 664 undertakings.

3) **Energy production, sales, and fuel consumption 1027**

   o Questionnaire code: 10272021

   o Submitted: Once a month by the tenth day after the end of the reporting month.

   o The questions which came up during the analysis and the discussions held.

   o The questionnaire is partly compliant with the purpose of the public procurement – consumption.

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- Several different types of transaction in one report: production, sales, consumption, balance.
- The sample of 2021 includes 367 undertakings.

4) **Power plants 1024**

- Questionnaire code: 10242021 Power plants
- Submitted: Once a year, the information about 2020 on 01 February 2021.
- Not included in the public procurement, but contains consumption information.
- The purpose of fuel consumption must be defined.
- The sample of 2021 includes 58 undertakings.

Analysis of the reports currently used from the perspective of the information collected about fuel consumption revealed that the following data are collected from undertakings:

1) **Fuel type. A separate fuel classification has been used so far. The analysis and discussion in the workshops revealed that there is no need for a separate classification and the KTTY classification of products and services can be used;**

2) **Purpose of consumption. The purpose of consumption can be obtained with the help of the financial year taxonomy elements used in the standard message of an economic transaction[19].**

Table 3. The cost elements of the fuel used for own consumption

Element ID in English	Element name in Estonian	Explanation in English
GoodsRawMaterialsAndServicesEnergy	Energia	The cost of the energy consumed
GoodsRawMaterialsAndServicesElectricity	Elektrienergia	The cost of the electricity consumed
GoodsRawMaterialsAndServicesHeatEnergy	Soojusenergia	The cost of the thermal energy consumed
GoodsRawMaterialsAndServicesFuel	Kütus	The cost of the fuel consumed

Table 4. The products, services acquired for the purpose of sale

Element ID in English	Element name in Estonian

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[19] https://www.riigiteataja.ee/akt/128122019018

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GoodsRawMaterialsAndServicesGoodsPurchasedForResale	Müügi eesmärgil ostetud kaubad
GoodsRawMaterialsAndServicesServicesPurchasedForResale	Müügi eesmärgil ostetud teenused

3) The amount of fuel consumed.

4) The cost of the fuel consumed (EUR).

2.2.2.3. *Suggestions for reporting energy consumption in accounting software applications (TO-BE)*

Undertakings should move towards using e-invoices to avoid the need to enter further data manually for submitting energy consumption reports. In the case of using e-invoices, appropriate classifications must be used and the information should be presented in the correct data fields. One example of the above is the <tariccode> data element of e-invoices where random values are provided, not the Taric codes required.

The future perspective of fuel consumption reporting is described below. Separate fuel consumption reports are no longer necessary. Undertakings should submit reports of their income and expenses, with the part about fuel reported in further detail, specifying the types and amounts of fuel. The expenses or income can also be provided in further detail to satisfy the information need required for statistical reporting.

2.2.3. Standardisation and developing a common taxonomy

The work revealed that **there is no need for a separate classification for types of fuel**. The **KTTY classification** developed by Statistics Estonia can be used. A taxonomy and message templates compatible with the 'Aruandlus 3.0' project have been developed[20].

2.2.4. Transfer to the XBRL GL standard

The XBRL GL standard is suitable for fuel consumption reporting. This work involved creating a fuel consumption reporting data structure based on the XBRL GL standard.

2.2.5. Business rules of fuel consumption reporting

Upon receiving a report in the XBRL GL format, it is primarily necessary to check the compliance of the message sent to the data scheme of a transaction-based data message (XSD)[21]. In addition to checking the general format of the message, the business rules suggested for checking fuel reporting should also be observed in the case of the respective reporting. In the fuel consumption reporting, the entries containing a dimension (gl-cor:accountSubType) of the value of KTTTY2020 must be filtered and the value of the (gl-cor:accountSubId) data element is included under types of energy.

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[20] Aruandlus_30_XBRLGL_naidis_2021_pakend_energia.xml

[21] https://www.xbrl.org/int/gl/2015-03-25/gl-framework-REC-2015-03-25.html

tieto Evry

Table 5. Business rules of energy consumption reporting

Code of the business rule	Data element	Rule/Formula	Explanation
BR_ENT001	gl-cor:accountSubType	='KTTY2020'	This data element must include the valid name of the products/services classification
BR_ENT002	gl-cor:accountSubID	in(KTTY2020)	The product classification code must fall under energy products
BR_ENT003	gl-bus:measurableUnitOfMeasure	in(EN16931 code list)	The measurement unit must be compliant with the EN16931 measurement unit (Unit) code list
BR_ENT004	gl-bus:measurableQuantity	numeric	The amount of fuel consumed must be expressed as a numerical value
BR_ENT005	gl-cor:amount	numeric	The cost of fuel consumed must be expressed as a numerical value

2.3. Outcomes of packaging and fuel consumption reporting

The outcome of the work on packaging and fuel consumption reporting includes detailed, analysed and standardised data compositions on which packaging and fuel consumption reporting is based (incl. analysing the necessity of the data fields and the potential amendments of the legislation within the framework of this). Amendments in the legislation are not required for tidying data compositions or taking into use a uniform classification of types of packaging. Statistics Estonia must approve the classifications used in this work and make them available as a machine-machine interface.

The work involved creating a uniform taxonomy for data compositions and creating the prerequisites for taking into use the XBRL GL standard.

The work also involved examining how such reporting is currently organised at undertakings and this document includes suggestions for organising data collection in accounting software.

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Summary

This document provides an overview of how to analyse and transfer from form-based reporting to data-based reporting based on the example of packaging and fuel consumption reporting.

A new classification must be taken into use for packaging reporting[22]. Thus, the current data composition of 'Aruandlus 3.0' was complemented with one further classification. No new data elements were added to the current data structure for fuel consumption reporting, as the separate classification for energy was foregone and the KTTY20 uniform classification for products and services was used. As a result of the work, a specific example was given on how to submit packaging and fuel consumption reports based on the XBRL GL standard. In order to give a better overview of the data used in the examples of the respective message, the same data are also provided in the Excel format[23]. For the classification of measurement units, the measurement unit coding suggested by the European Union e-invoice standard was used in the examples (EN16931 code list).

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[22] Pakendi_klassifikaatori_naidis_v1_0.xlsx

[23] Andmekoosseis_20210820.xlsx

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Annexes

AA30_taksonoomia_20210820.xlsx

AA30_taksonoomia_
20210820.xlsx

Andmekoosseis_20210820.xlsx

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