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CHOOSING A SUPPLIER OF FUELS AND ENERGY IN LARGE-FORMAT RETAIL ENTERPRISES

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Purpose: The overriding goal of the considerations is to indicate the assumptions and rule for the implementation of the procedure leading to the appointment of an appropriate fuel and energy supplier in large-format enterprises (L-FE), to the extent necessary to improve economic results. The choice will take into account both the size and structure of the resources that are at the disposal of the enterprise and the environmental conditions. The practical goal will be to develop a concept for the implementation of the procedure for the evaluation and selection of a supplier of energy carriers for the needs of a commercial entity.
Design/methodology/approach: The research procedure will run through the following stages: 1. Presentation of the theoretical foundations by discussing concepts related to the functioning of the fuel and energy economy as well as indicating the methods and criteria for selecting a supplier. The research method used will be a review of the literature on the subject. 2. Recognition of the L-FE decision situation through the analysis of the subjective, objective and process structure. The research method used will be direct observation with participation. The observation will be carried out in four commercial networks (in total seven enterprises). 3. Setting the assumptions for the implementation of the procedure for the evaluation and selection of the supplier of energy carriers in L-FE. At this stage, the purpose of the procedure, its essence, stages and tasks of implementation as well as the procedure will be indicated. Responsible persons and contractors will be appointed. The evaluation criteria as well as the applicable entry and exit documents will be proposed. The research method used will be the expert method.
Findings: The added value of the article is the answer to the question: how is the process of assessing and selecting the supplier of energy carriers in L-FE? The work indicates its goal, stages and tasks of implementation, applicable documents, methods of proceeding and evaluation criteria. The proposed solution contains practical guidelines. Should be noted that the adopted scheme of conduct and the method of its application in a trading enterprise creates the possibility of transferring the developed solutions to other economic systems.
Originality/value: In this article, the actions taken have been focused on areas that have and will have an impact on reducing the costs of the company's operation and, consequently, on improving their competitive position on the market.

Keywords: purchase, fuel, energy, trade, distribution.

Category of the paper: Case study.

Introduction

One of the important companies on the retail market are large-format enterprises (L-FE). These are economic units located in large and medium-sized cities. They specialize in selling goods to end users. They offer a wide range of commercial space, a wide range and a limited range of support services.

In the examined enterprises, in the structure of costs by type, the costs related to the purchase of energy carriers have a high share. Energy and fuels are commonly used there for lighting, maintaining the right temperature, humidity, cooking and baking, as well as driving equipment and means of transport. Electricity and gaseous fuels have the largest share in the consumption structure of the enterprise's carriers.

In recent years, the purchase prices of fuels and energy have shown a significant increase and were characterized by uncertainty as to their future size (Statistical…, 2021). It should be emphasized that the domestic market was strongly determined by the current political and social events recorded in the world (Mulder, 2021). In Poland, the climate and energy policy of the European Union (EU) had a significant impact on the prices of electricity and heat, in confrontation with the condition of the electricity sector and the designated directions for its transformation. The process of deregulating the electricity and natural gas markets was carried out in the country, and thus market mechanisms developed in their wholesale and retail trade. On the other hand, the prices of liquid fuels were determined on an arm's length basis, based on the crude oil quotation, the USD exchange rate and the level of national taxes (Oil…, 2021). In the past period, also important were activities related to the introduction of regulations and standards or financial support to improve the efficiency of fuel and energy consumption in economic systems.

In response to the above-mentioned issues, it was assumed that the main objective of the paper will be to indicate the assumptions and rule for the implementation of the procedure leading to the appointment of an appropriate fuel and energy supplier in L-FE, to the extent necessary to improve economic results. The choice will take into account both the size and structure of the resources that are at the disposal of the enterprise and the environmental conditions. The practical goal will be to develop a concept of procedure for the evaluation and selection of a supplier of energy carriers for the needs of a commercial entity.

The essence of the research problem boils down to answering the following question: how is the process of assessing and selecting a supplier of energy carriers in the examined enterprise? The above question can be broken down into specific questions about its goal, stages and tasks of implementation, binding documents, methods of proceeding and evaluation criteria.

Therefore, the subject of research is the process of supplier evaluation and selection. The research area is the fuel and energy subsystem located at L-FE.

The research procedure will run through the following stages:

1. Presentation of the theoretical foundations by discussing concepts related to the functioning of the fuel and energy economy as well as indicating the methods and criteria for selecting a supplier. The research method used will be a review of the literature on the subject.
2. Recognition of the L-FE decision situation through the analysis of the subjective, objective and process structure. The research method used will be direct observation with participation. The observation will be carried out in four commercial networks (in total seven enterprises).
3. Setting the assumptions for the implementation of the procedure for the evaluation and selection of the supplier of energy carriers in L-FE. At this stage, the purpose of the procedure, its essence, stages and tasks of implementation as well as the procedure will be indicated. Responsible persons and contractors will be appointed. The evaluation criteria as well as the applicable entry and exit documents will be proposed. The research method used will be the expert method.

2. Theoretical basis

The term energy can be viewed in different terms (Harker, Backhurst, 1982). In the fuel and energy economy, it means a certain physical form of energy desired by consumers, expressed in given units of measurement, which is the subject of trade and is commonly used for human use. Energy cannot arise ex nihilo. It can be obtained by the use of energy carriers (Jedynak, 2022). Energy carriers come in various physical forms. They are both renewable and non-renewable. They are found in the natural environment and result from specific technological processes. In the literature on the subject, their classification also takes into account the method of their processing or their final destination (Shah, 2015).

The basic values used in the energy analysis of energy carriers commonly include their chemical composition, heat of combustion, calorific value and the efficiency of energy transformations of devices. The other parameters to be considered are directly related to their separate physico-chemical properties (Jedynak, 2022).

Commonly used measures in trade in fuels and energy are units included in the International System of Units (SI – Systéme International d'Unités) for mass, volume, temperature, pressure, power and energy flux, heat or work (Certi, Fontini, 2019).. In addition, other non-systemic units are also applicable. They are specific for a given area or refer to a given energy carrier. They reflect historical processes or cultural determinants (Jedynak, 2022).

In the literature on the subject, the fuel and energy system is presented in two perspectives (Edwards, 2017). In a broader sense at the level of the entire economy and in a narrow sense from the point of view of an organizational unit. In a broader sense, it is a separate part of the national economy. Depending on the researcher's needs, different classification criteria can be distinguished. For example, taking into account the stages of fuel and energy flow (subsystem of supply, production, distribution and waste management), type of fuel (subsystem of solid, liquid, gaseous fuels and electricity) or construction (sub-system subject, object, process). In the narrow sense, the fuel and energy system is a separate part within a given organizational unit. It includes both the supply and consumption subsystem. The subject structure of the supply subsystem is made up of the department and positions responsible for the purchase and supply of individual energy carriers and suppliers. The consumption subsystem includes a department and a position responsible for the consumption of individual energy carriers (Jedynak, 2022).

The literature on the subject commonly indicates two groups of supplier evaluation and selection methods. The first is through a survey, the so-called audit. The second is taxonomic methods, including the point, point-graphic, graphic, indicator or AHP methods. The adopted stages of their implementation include both the preparatory and implementation phases. The preparatory phase aims at determining the assumptions and rules applicable during the conduct of the procedure. Moreover, it is related to the identification and development of tools. The implementation phase is the launch of the procedure in accordance with predefined guidelines. The end result is the appointment of a supplier (Dwiliński, 2006).

The following evaluation criteria are commonly used to evaluate suppliers, i.e. delivery time, supplier reliability, supplier readiness and flexibility, and delivery efficiency (Christopher, 2016). Additionally, the offered price and the quality of the products are taken into account (Twaróg, 2006). Due to their importance, they are divided into primary and secondary criteria. However, assuming the nature of the assessment, we can indicate quantitative and qualitative. The adopted criterion, regardless of its type, requires detailed definition. For this, indicators and gauges are commonly used. The influence of the various criteria on the purchase decision varies. Therefore, it is important to indicate their importance by adopting an appropriate weighting (Jedynak, 2017).

3. Description of the decision situation

The entity structure of L-FE includes a given organizational unit, functional departments located there, as well as people and their work. The organization in the examined enterprise is based on a hierarchical organizational structure. There are commercial and auxiliary departments. There are four groups of work positions, i.e. management, support, core and support staff. Within the scope of their assumed scope of duties, there is a specialization. The organizational structure at L-FE is presented in Figure 1.

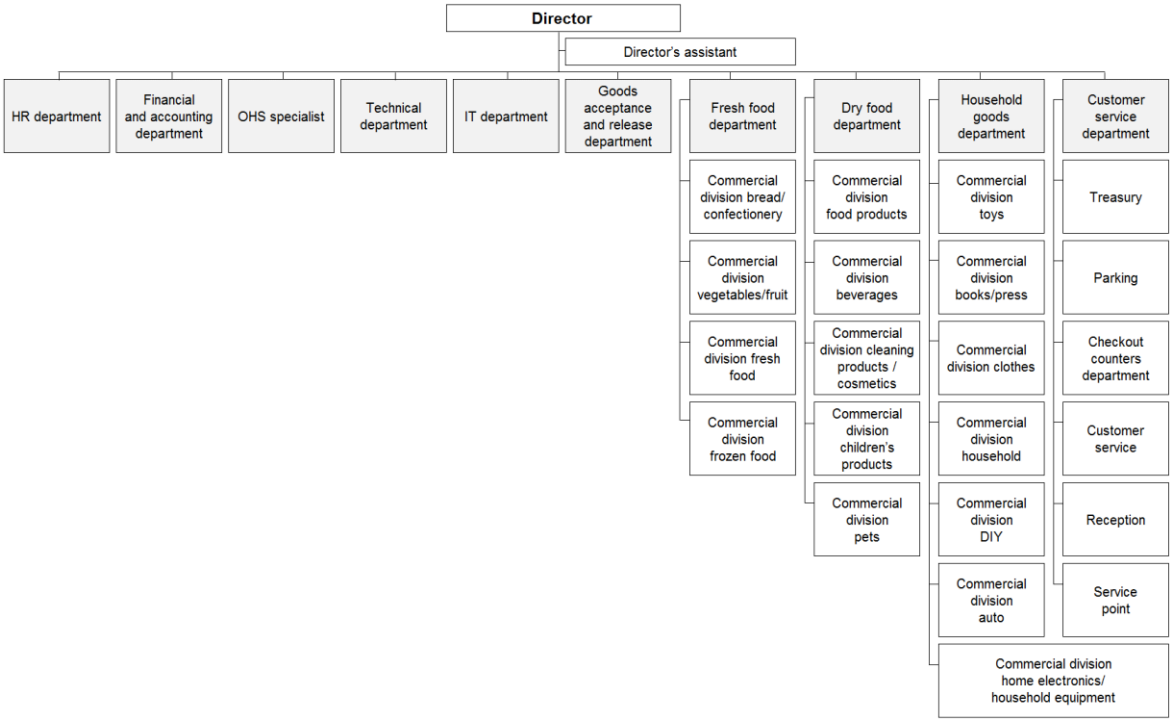

Figure 1. Organizational structure of L-FE. Source: own study.

The subject structure of the L-FE includes the subject of work and the means of work. The subject of work is a commodity constituting a commercial offer. In the surveyed enterprises, according to the generic criterion, it is possible to indicate the division of goods into groups, subgroups, classes and subclasses. This division determines the organization of commercial and warehouse space at the same time. The characteristics of the goods are presented in Table 1.

Table 1.
Characteristics of stored goods in a grocery hypermarket

Group	Characteristics									
	Undemanding	Ensuring conditions	Posing a threat	Small-sized	Medium-sized	Large-size	Unit constants	Ssolid loose	Liquid	Ggas
Vegetables/Fruits		■		■	■		■	■	■	
Bakery/ Confectionery		■		■			■	■		
Fresh products		■		■			■	■	■	
Frozen food		■		■			■	■		
Groceries	■			■	■		■	■	■	
Drinks	■			■	■				■	
Chemicals/ cosmetics	■			■	■		■	■	■	■
Children's articles	■			■	■		■	■	■	
Articles for animals	■			■	■		■	■		
Industrial articles	■	■	■	■	■	■	■	■	■	■

Source: own study.

In the surveyed enterprises, the means of work include technical infrastructure and materials for the operation of machines and devices.

Technical infrastructure includes building structures and their equipment. In the structure of buildings in L-FE, closed buildings constitute the main part. It is complemented by semi-open and open warehouses and a car park. The plan of the sales hall and warehouse is presented in Figure 2.

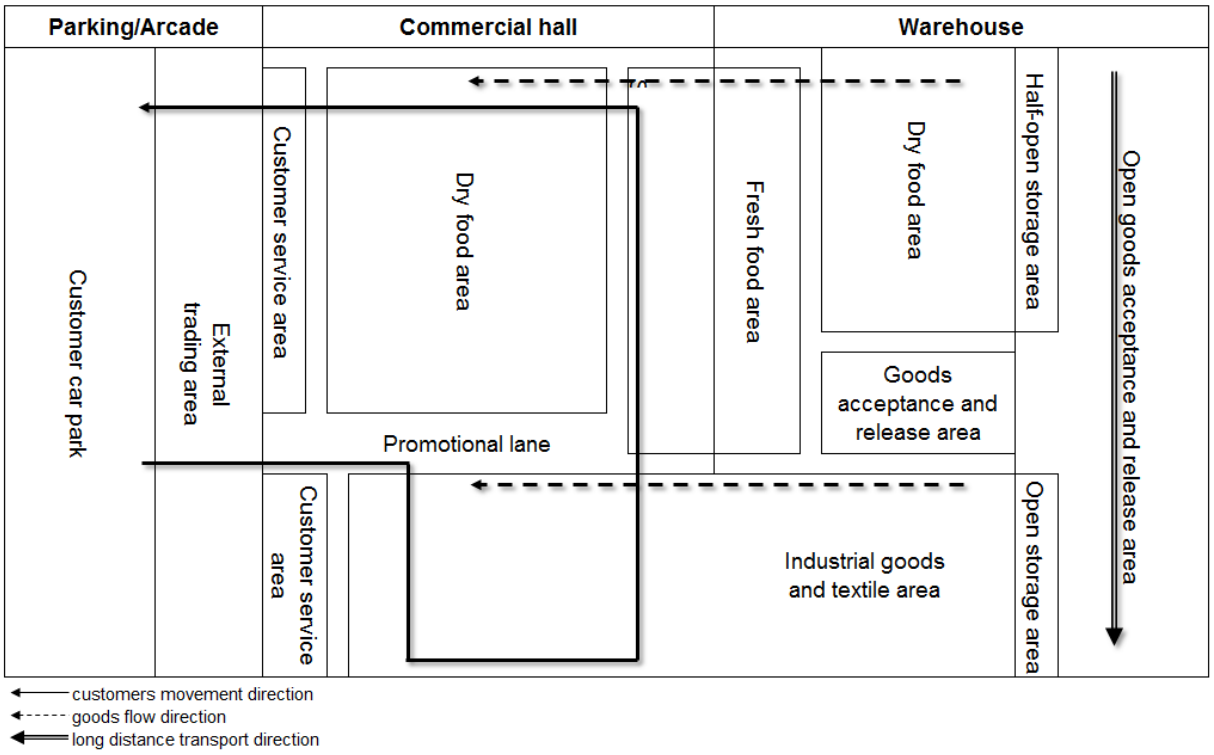

Figure 2. An example of the structure of retail and warehouse space in large-format stores. Source: own study.

At L-FE, technical devices are devices used for storing goods, supporting goods and customer service, transporting goods and their manipulation, or IT systems. Consumables, on the other hand, include fuel and energy. The scope of application of particular technical devices and energy carriers is presented in Figures 3 and 4.

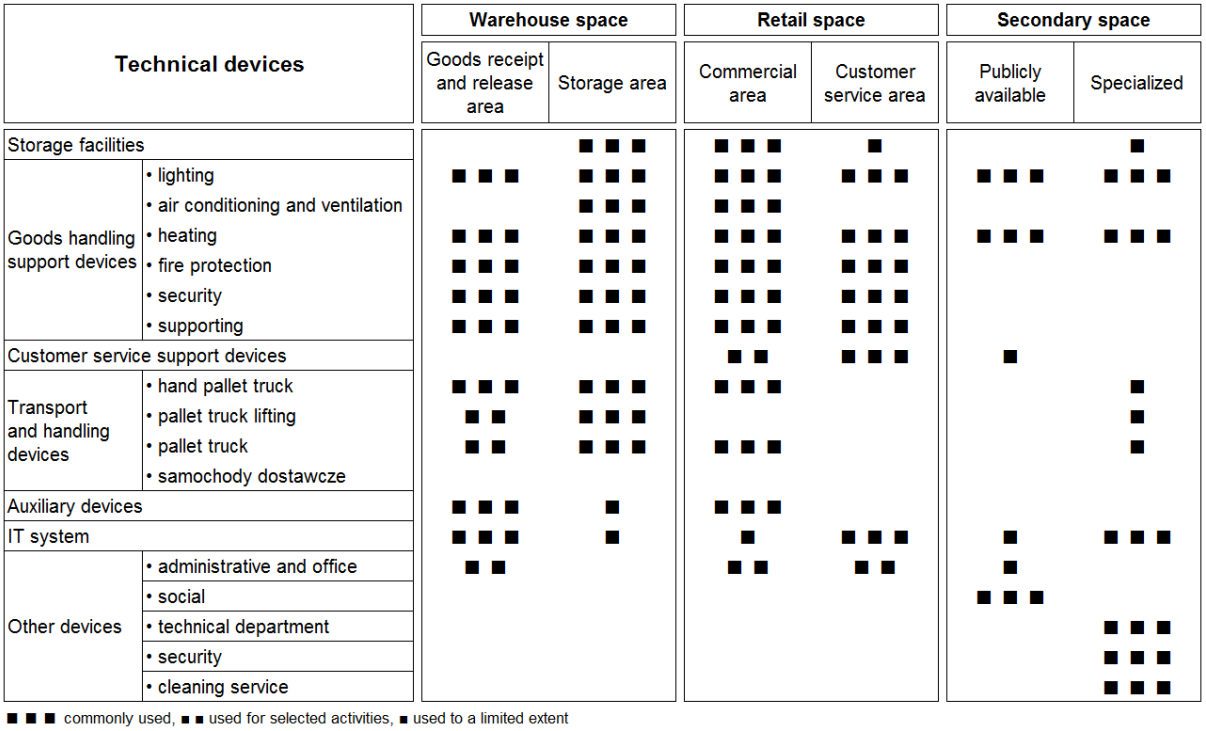

Figure 3. The scope of application of technical devices in L-FE. Source: own study.

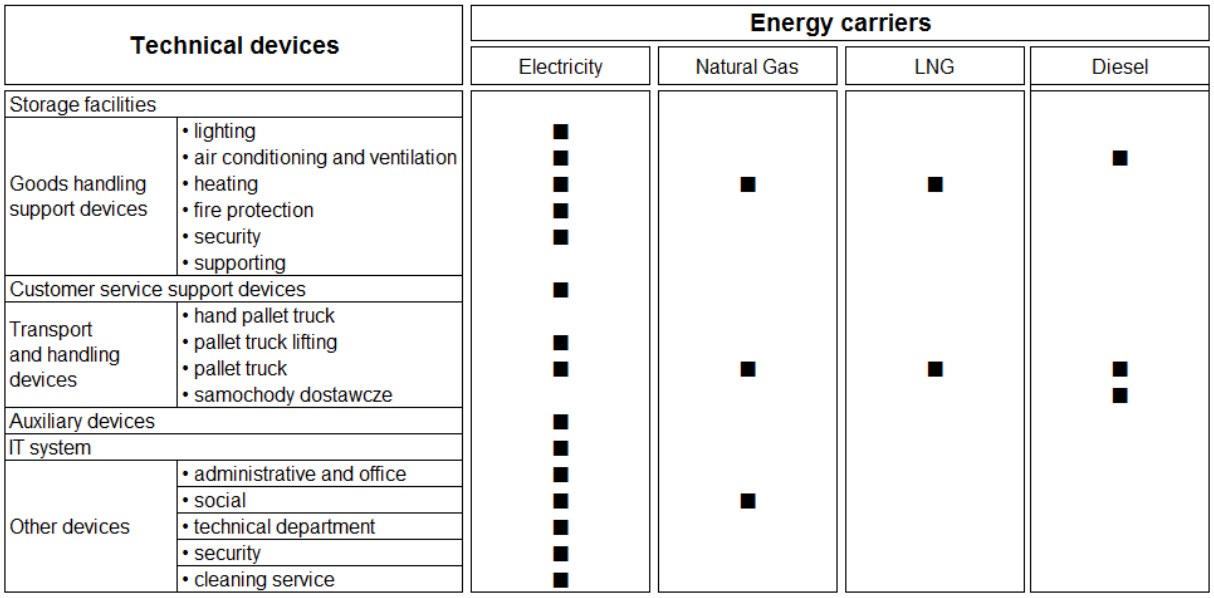

Figure 4. The scope of application of energy carriers by technical devices in L-FE. Source: own study.

The L-FE process structure is a set of supported processes, the primary purpose of which is to ensure the flow of goods from their suppliers to final recipients along with information. Taking into account the specificity of retail trade and adopting the criterion of the importance of the processes being implemented, two groups of them should be indicated, i.e.

- main (sales) proces,
- supporting processes, i.e. supply of goods (including evaluation and supplier selection), storage and logistic customer service.

4. Development of assumptions for the implementation of the procedure

At L-FE, the main objective of the procedure for the evaluation and selection of the supplier of energy carriers is the conduct of the procedure by the company. The implementation of the goal will allow to select the appropriate fuel and energy supplier, taking into account both the size and structure of the reported fuel and energy needs as well as financial, technical, human resources, as well as administrative, legal, economic and technical conditions.

The essence of the procedure is suitable for answering the following questions:

- What is the size of the current needs reported by the company for fuels and energy and what are the possibilities of obtaining them?
- Who is the supplier of fuels and energy on the domestic market and what are the purchase conditions there?
- What criteria should be applied in the enterprise in the assessment of fuel and energy suppliers?
- Which of the fuel and energy suppliers on the domestic market is best suited to the reported needs and capabilities of the enterprise?

Taking into account the above goal and organization of the examined enterprise, it was assumed that the evaluation and selection of the supplier of energy carriers would be carried out with the use of the scoring method. Its course will take place in the following stages, i.e.:

1. Determination of the size and structure of fuel and energy consumption.
2. Identification and characteristics of the domestic fuel and energy market.
3. Development of assumptions for the evaluation and selection of the supplier.
4. Identification of the conditions of purchase of fuels and energy.
5. Assessment and selection of the supplier of energy carriers.

For the purposes of the procedure, documents have been divided into two groups, i.e. entry documents and exit documents.

Entry documents are existing documents, the so-called secondary sources, in or around the enterprise.

The exit documents are prepared forms with a strictly defined purpose and structure, filled in and approved by an indicated person. They are assigned to a specific task, support their course or constitute a confirmation of their performance.

The diagram of the procedure implementation along with the documentation is presented in Figure 5.

Figure 5. Map of the process of assessing and selecting a supplier of energy carriers in L-FE. Source: own study.

As part of individual stages and tasks, four detailed methods of proceeding were indicated, i.e. document analysis, expert method, direct interview and evaluation using indicators. The methods adopted with the division into individual tasks are presented in Table 2.

Table 2.
Methods of implementing the procedure for the evaluation and selection of the supplier of energy carriers in large-format stores

Stage	**I**					**II**			**III**	**IV**		**V**		**VI**		
Task	1	2	3	4	5	1A	1B	2	1	1	2	1	2	1	2	3
Document analysis		■			■	■			■							■
Expert method	■		■	■			■	■		■	■				■	
Direct interview						■						■	■			
Assessment with indicators														■		

Source: own study.

Three groups of employees were designated to conduct the procedure, i.e .:

- Director, responsible for launching the procedure and approving the final results obtained.
- Manager, responsible for the overall course of the procedure.
- Contractor, person carrying out the indicated stage and (or) task.

The detailed scope of their duties is presented in Table 3.

Table 3.
Responsibilities of individual groups of employees, the procedure of evaluation and selection of energy suppliers in L-FE

Position	**Description**
Director	− getting acquainted with the applicable procedure in the enterprise − indication of the person responsible for the implementation of the procedure − acceptance of the cumulative costs of implementing the procedure and the final results of the final report − managing the work of staff − providing certain means of work necessary to perform the indicated activities
Manager	− getting acquainted with the applicable procedure in the enterprise − indication of the performers of individual stages and (or) tasks − developing a schedule for the implementation of tasks − calculation of the total costs of the procedure and its submission for approval − providing certain means of work necessary to perform the indicated activities − managing the work of staff − indication of the supplier of energy carriers − preparation of the final report and submission for approval
Task performer	− carrying out the indicated tasks and informing the manager about their progress on an ongoing basis − proper use, protection and control of the entrusted means of work − reporting material needs

Source: own study.

Taking into account the subject, purpose and stages of the procedure as well as the organization of the L-FE, the following areas of evaluation of the supplier of energy carriers were indicated:

- economic and financial, i.e. price, access costs and payment terms,
- organizational and technical, i.e. readiness, flexibility and effectiveness of the service,
- safety, i.e. product and service quality and supplier reliability.

The indicated areas need to be defined by specifying the purchase parameters, their measurement units, weight and the method of evaluation. An exemplary assessment is presented in Table 4.

Table 4.
An exemplary evaluation of the purchase of fuels and energy together with their evaluation

Assessment area	Parameters	J.m.	Scales	Scoring			
				0	1	2	3
Economic and financial	Unit price	PLN/ liter	0,5	below the average of the assessed vendors	0-5% of the average of the evaluated suppliers	6-10% of the average of the suppliers assessed	over 10% of the average of the suppliers assessed
	Payment deadline	day	0,2	when you buy	1-7	8-14	over 14
Organizational and technical	Electronic platform and there is functionality	–	0,1	not available	available, satisfactory, partially meets the requirements	available, good grade, meets basic requirements	available, grade very good, meets all the requirements
Security	Previous experience in cooperation	–	0,2	lack of cooperation or un-satisfactory, the supplier does not comply with the terms of the contract	satisfactory, the supplier partially complies with the terms of the contract	good grade, supplier meets the basic requirements	very good grade, the supplier meets all the requirements

Source: own study.

5. Conclusions

It should be emphasized that the proposed solution contains practical guidelines enabling the conduct of the procedure for the evaluation and selection of the supplier of energy carriers. The adopted scheme of conduct and the method of its application in a commercial unit creates the possibility of transferring the developed solutions to other economic systems.

The implemented process must have the following features, i.e.:

- adequacy, adequately reflecting the real state, must be resistant to manipulation and distortion of the result,
- topicality, the results obtained are up-to-date, and thus guarantee the usefulness of the assessment,
- comparability, the obtained results can be compared and compared with other results,
- understandable, the results obtained must be clearly understandable for all users,
- completeness, the assigned assessment applies to the entire fuel and energy system,
- costs and benefits, i.e. to guarantee appropriate relations between entering the system and its output, otherwise the selection made must provide tangible benefits.

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