Social aspects of an electric grid company’s sustainable development

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Abstract. Sustainable development of the energy sector requires its transformation and strengthening the role of consumers. Consumer satisfaction is becoming a significant social aspect of the sustainable development of an electric grid company. A company can enhance its sustainability by meeting the customer needs to the greatest extent and by establishing a system of partnership relations. The article presents a methodology for studying and identifying key satisfaction factors. The authors propose using a set of methods: survey, factor and frequency analysis, Net Promoter Score, as well as analysis of customer reviews. The object of the study is PAO Rosseti Ural, a Russian electric grid company, with a sample of 435 respondents. The JASP software package was used to carry out the analysis and identify the most significant factors influencing consumer satisfaction. The Net Promoter Score (NPS) index calculation showed a lack of customer loyalty to the company. Frequency analysis and analysis of customer reviews allowed identifying the main difficulties for the consumers of the company’s services. The authors have also identified priority channels for managing customer requests and feedback and developed recommendations to increase the level of customer satisfaction and enhance sustainable development of an electric grid company.

1 Introduction

Ensuring universal access to affordable and reliable clean energy is among the 17 key sustainable development goals (SDGs) adopted at the United Nations Sustainable Development Summit in 2015 in the scope of the 2030 Agenda. This goal requires special attention to the energy sector development in the Russian Federation and improving the sustainability of electric power companies. The energy strategy of Russia provides for increasing role of consumers in the electricity and system services markets as one of the conditions for sustainable development of the industry. In this regard, customer satisfaction, improving the service quality, and establishing a system of partnerships with consumers of electricity are becoming especially significant for the sustainable development of an electric grid company.

According to most researchers, the sustainability of an enterprise is influenced by environmental, economic, political and social factors [1]. Consideration of social factors usually refers to managing relationships with employees and creating favorable working

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conditions for them. However, the role of customer relationships is not usually taken into account, while they significantly influence the financial and economic results of a company's activities, allowing it to adapt to changes in the external environment and peculiarities of the market situation [2, 3]. Consumers can put pressure on a business in its activities of producing, distributing and selling products and services [4].

Corporate social responsibility towards consumers allows companies to develop customer-oriented strategies and create long-term consumer loyalty by focusing on customer satisfaction with interaction with the company and the services it provides. This leads to the establishment of strong relationships in the producer-consumer chain, sales growth, and as a result, more sustainable development of the industry as a whole.

As early as 1992, meeting people's needs was highlighted as a crucial social aspect of the sustainable development concept at the United Nations Conference on Environment and Development in Rio de Janeiro as reflected in its resulting document, Agenda 21, or an Agenda for the 21st Century. In 2015, The United Nations reaffirmed the relevance of the objectives to meet the needs of people, improve the quality of life and increase satisfaction along with the goal of ensuring sustainable consumption and production patterns by incorporating these social aspects in the sustainable development goals in the 2030 Agenda for Sustainable Development mentioned above. By prioritizing consumer relationships and focusing customer satisfaction, companies can enhance competitiveness and secure a stronger market position [5]. In today's context, the implementation of the sustainable development principles directly affects the company's competitiveness [6].

The increasing importance of the social aspects of sustainable development is associated with the evolving role of an individual in post-industrial society [7]. From the sustainable development perspective, this trend signifies growing impact of consumers and their values on a company's economic and market performance and its ability to achieve its corporate goals.

The correlation between a company's profitability and customer satisfaction can be demonstrated with the "return on relationship" model as proposed by J. Egan [8]. According to this model, customer satisfaction leads to customer retention, which subsequently enhances profitability of the company. The quality of products and services plays a significant role in achieving customer satisfaction. Therefore, it is essential to understand how the quality is assessed by the organization itself, on the one hand, and perceived by the consumer, on the other hand, in order to identify differences between the company assessments and customer perceptions.

Satisfaction and emotions following and resulting from the purchase of a product or service form customer loyalty, which comprises both rational and emotional components of consumer behavior [9]. As far as the rational components are concerned, they include assessment of the quality of service, time spent, availability of alternatives, possible drawbacks found when using the product, while emotional components include customer's own opinion about the product or service, as well as the willingness to recommend the company [10]. Researchers identify specific aspects of customer satisfaction and customer-oriented policies of companies depending on the industry [11]. These variations result not only from differing customer needs in different markets but also from changes in the external environment affecting the markets [12]. Therefore, it is crucial to identify these aspects and factors that create satisfaction, allow meeting client expectations, and build customer loyalty to the company.

The relevance of creating consumer satisfaction is acknowledged by most companies. At the same time, the market for electric grid services is largely monopolized and consumers may have limited or no choice when selecting a grid connection service provider. In such cases, companies may prioritize meeting their own objectives over achieving customer satisfaction. In this regard, a system of factors which includes not only
the company’s values, but also the interests of consumers is required to enhance the sustainability of an electric grid company.

The article aims to systematize the factors that are most significant for the shaping customer satisfaction, as well as to propose measures to enhance the sustainability of an electric grid company in today’s context.

The object of the study was PAO Rosseti Ural, formerly the Interregional Distribution Grid Company of Urals – a Russian energy company that operates in the Sverdlovsk and Chelyabinsk regions as well as in Perm Krai transmitting electricity through networks with voltage ranging from 0.4 to 220 kV and providing technological services for connecting the customers to electric grids. The Rosseti Group of Companies define the goals to expand interaction with consumers and to ensure accessibility and quality of services as its strategic objectives in terms of sustainable development. The company has developed principles for implementing a sustainable development policy, which include adopting an integrated approach to addressing consumer requests and issues, continuously monitoring their expectations and the level of satisfaction.

The research methodology proposed by authors to identify key factors of customer satisfaction includes factor and frequency statistical analysis, as well as calculating the Net Promoter Score (NPS) consumer loyalty index and analyzing online reviews about the company shared by customers on the Internet.

2 Materials and methods

The authors conducted a survey among the clients of PAO Rosseti Ural with the sample consisting of 435 respondents from the three regions of the company’s presence: the Sverdlovsk and the Chelyabinsk regions as well as Perm Krai. The survey took place in October and November 2023 and was conducted online using the Yandex Forms service.

The questionnaire included the following question.

The first question asked respondents to rate the criteria that they consider important when applying for the services of an electric grid company: call center performance, service delivery time, ease of payment, speed of cost calculation, convenient website, simplicity and accessibility of filing applications, ease of transmitting usage meter readings, politeness of staff, professional consultations with company specialists, quality of technical operations. Respondents used a seven-point scale to assess the importance of each factor, with 1 indicating completely unimportant factors, and 7 for the most important ones. The responses obtained from the survey were processed using factor analysis and the criteria with the highest correlation coefficients were identified and grouped together.

To calculate the NPS customer loyalty index, customers were asked about the likelihood that they could recommend this company to their friends, colleagues, acquaintances (using a scale where 1 indicated “absolutely not likely” and 10 indicated “absolutely likely”).

Respondents were also asked whether they encountered any difficulties when contacting the company. Additionally, in order to identify priority communication channels, the form included a question regarding the preferred channels for submitting requests to the company.

The data analysis was carried out using the JASP software package, which is an open-source software for statistical analysis.

3 Results and Discussion
The factor analysis revealed three key factors that were the most important for ensuring customer satisfaction, which characterize 79% of the variance in the initial data. These factors combine criteria that are most correlated with each other.

The first factor accounted for 31% of the explained variance in the initial data. It included the call center performance (correlation coefficient R=0.713), the simplicity and accessibility of filing applications (R=0.700), and the ease of transmitting usage meter readings (R=0.624).

The second factor (27% of the explained variance in the initial data) consisted of the following criteria: service delivery time (R=0.612), ease of payment (R=0.636), speed of cost calculation (R=0.713).

The third factor (21% of the explained variance of the initial data) comprised politeness of staff (R=0.788), professional consultations with company specialists (R=0.893), quality of technical operations (R=0.645).

Based on the results of the factor analysis, three factors were identified as having the greatest impact on customer satisfaction and the sustainable development of the electric grid company:

1 – establishing effective communication with consumers, allowing them to quickly and conveniently send information to the company and receive feedback;
2 – ensuring prompt customer service both when performing energy transmission services and during mutual settlements;
3 – enhancing staff training and improving the quality their work.

The calculation of the NPS index revealed a lack of customer loyalty to the company. Specifically, NPS with a negative value of -45.07% indicates a critical situation regarding customer satisfaction and the need for urgent actions to improve it. Only 21.13% of respondents are ready to provide positive recommendations to PAO Rosseti Ural while 66.2% had negative experience when interacting with the companies. The customer loyalty is consistent across regions and low level is attributed to numerous problems within the company.

Frequency analysis showed that more than 84.5% of respondents encountered problems related to their interaction with the company. These difficulties included the following aspects: the need to contact the company with the same question multiple times (22.5%), delays in service delivery (18.8%), extended waiting time from submitting an application to receiving the service (12.4%), the need for assistance in submitting an application (7.9%), late departure of the technical crew (5.3%), inability to reach the call center (4.5%).

In their responses to an open question about the problems clients encountered when contacting the company with a request, 22.5% of respondents noted the inability to achieve the desired result for a long time, often for several years. Additionally, 18.3% of respondents faced incompetence and negligent attitude of employees of the company, as well as complete lack of response by phone and in instant messengers, while 15.5% of respondents complained about long waiting time for an operator on the line, another 8.5% were not aware of the company’s presence on social media and its VK community in particular, or could not find the application form on the official website. Finally, 16.9% of respondents demanded overall improvements to all company processes.

An analysis of online reviews about the company on the Yandex Maps website confirmed that consumers most often mention the problems with customer service, timing of service delivery and the quality of available information about the services.

Regarding the preferred methods of contacting the company with a request, 46.5% and 43.7% of respondents respectively mentioned doing so by a phone call and on the company’s website. The VK community (11.3%) and Telegram instant messenger (5.6%) have become less preferred communication channels for requests.
The summary of the analysis indicates a very low level of satisfaction among the customers of PAO Rosseti Ural. Company’s claim to adopt a customer-oriented approach and provide a high level of service to consumers appear to be merely declarative in nature and lack evidence of specific actions supporting the official statements. It should be concluded that revision of the principles is required to improve customer relationships and establish a system of partnerships with clients.

In order to increase the level of consumer satisfaction and the sustainability of the electric grid company in modern context, the authors recommend the following measures:

1. Conduct training and certification programs for call center staff in order to improve skills and professional competencies and prevent situations where an operator cannot answer the client’s question.
2. Increase the number of call center operators and implement a Key Performance Indicator (KPI) system in order to motivate employees to focus on the quality of their work.
3. Redistribute the flow of customers across various communication channels to avoid long waiting time on the line by increasing promotion of other channels through the “feedback” section on the company website or corporate social media.
4. Organize customer informing about the status of the application and possible delays in service delivery, as well as about power outages.
5. Increase the number of employees providing services in order to meet deadlines set for completing technical operations.
6. Plan regular diagnostics of the website performance, create a website section with the most frequently asked questions to reduce the load on the call center.
7. Focus on core services that enjoy high demand rather than developing and introducing new additional services.
8. Provide active guidance to clients throughout the entire cooperation process: from receiving an application from a customer to putting the object of service into operation in order to prevent repeated requests on the same issue.

The implementation of these recommendations and proposed activities implies that the company will objectively evaluate its performance focusing its efforts on building relationships with customers and solving their problems to increase satisfaction.

4 Conclusion

The results of the study demonstrate that by identifying the factors with the greatest impact on consumer satisfaction, based on customer survey and analysis of responses, researchers and managers can assess the actual level of a company’s customer orientation and facilitate the development of measures to improve the sustainability of an electric grid company.

The factors identified by factor analysis consider the most important criteria for the customer’s interaction with an electric grid company when applying for service. Analysis of these factors allows for the development of measures aimed at addressing the issues of a particular customer, as well as improving relationships with clients.

The authors assume that further research directions can include developing and applying methods for assessing the effectiveness of the proposed measures for companies operating in the electrical grid services market.

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