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Article

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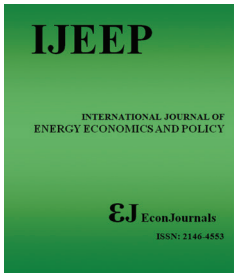

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Improving Marketing Approaches to the Energy Sector of Kazakhstan for Decarbonization

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ABSTRACT

This article is devoted to the study of marketing approaches to decarbonization to the energy sector of Kazakhstan. Obviously, it is important for Kazakhstan, with its economy based on the export of raw materials, to boost the use of technologies and approaches for decarbonization already now. These include technologies for carbon capture and storage, energy conservation, as well as the transfer of electricity generation to renewable sources and the use of offset mechanisms. The authors substantiated the need for the formation of a marketing strategy at the enterprises of the energy market of Kazakhstan to promote the ideas of decarbonization, green economy and ecology. Most of The Group of Twenty countries have set ambitious climate change targets that must be translated into clear strategic actions to bring about the needed change. Achieving carbon neutrality requires collaboration across sectors. Implementing climate change action on the scale needed requires marketing approaches that incentivize action on climate change. Servitization is not just a service offering, but a fundamental organizational and cultural change in an enterprise. The purpose of the research is to form a marketing approach of servitization for decarbonization. The SPSS software was used to test the hypotheses put forward in the article. The results of the research can be used to develop and implement strategies for the servitization of a energy market. Companies need to carry out motivational transformations related to the need to introduce servitization.

Keywords: Energy, Decarbonization, Servitization, Marketing Strategy
JEL Classifications: M31, Q4

1. INTRODUCTION

The rapid move towards decarbonization is largely driven by consumer demand for cleaner energy, as well as pressure from investors who evaluate projects on both financial performance and their compliance with ESE (environment, society, and corporate governance) criteria. The industry has set itself the ambitious goal of achieving emissions reduction targets that will allow it to remain operational both during and after the transition to a low/zero emission energy system. It is vital for the industry to achieve these goals. Several companies are already taking decisive action in this direction. Unfortunately, the industry is unlikely to meet its 2050 targets.

The COVID-19 pandemic has shown us what the future will be like with cleaner skies and less congested roads in big cities. But we should consider this situation as a warning. The impact that the pandemic has dealt on the global energy system is very painful. In just a few weeks, the oil and gas industry has gone through a transformation that would normally take a decade. Demand for oil has fallen significantly, and more than 20% of coal consumption in some major markets has been rapidly replaced by renewable energy sources with zero marginal cost. The industry is still feeling the effects of what happened.

One of the greatest challenges for humanity is the transition of the energy system from fossil fuels to carbon-free and environmentally

sustainable. This transition is also an opportunity to achieve global energy availability on a scale never seen before.

On the path to decarbonization, energy system participants have three options. The first option is to increase the environmental friendliness of core activities to minimize emissions and enhance the efficiency of ongoing processes, infrastructure, and value chains. The second option is to accelerate the transformation by replacing existing sources of energy and demand with affordable, competitive, and green zero-emission alternatives. And the third option is to push the boundaries by introducing and scaling new energy sources, processes and technologies that are beyond what is commercially and technically feasible today. To be successful, you need to include all three sets of activities. Keeping the right balance for a long time will reduce the risk during the transformation.

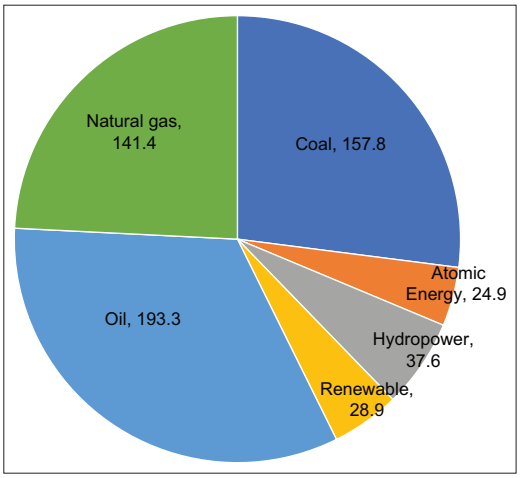
The global decarbonization model is built in four stages.

1. Establish base case emissions for each demand sector using data from accredited government sources
2. Estimate emission levels up to 2050 under business as usual.
3. Determine the factors influencing emission reductions and their potential if implemented in full.
4. Predict the percentage reduction in emissions achieved by the impact of a factor on emissions compared to emissions from normal business practices.

Global energy consumption by source in 2019 according to BP data is presented in Figure 1. The main energy sources are oil, coal, and gas, which account for 33%, 27% and 24% respectively. Hydropower, renewables, and nuclear power account for 7%, 5% and 4% respectively.

Current situation and achievement of targets The Strategy "Kazakhstan-2050" and the Concept for the transition of the Republic of Kazakhstan to a "green economy" set ambitious goals to achieve the share of renewable energy sources of 3% by 2020, 10% by 2030, and 50% by 2050 of the total electricity production. Traditional energy sources also need to improve their efficiency. Today, the Unified Energy System (UES) of Kazakhstan is working steadily. The system reliability of the UES is fully ensured, the need of the economy and the population for electricity is satisfied.

Figure 1: Global energy consumption by source (exajoules) 2019



The production of electrical energy in Kazakhstan is carried out by 138 power plants of various forms of ownership. The total installed capacity of power plants (PPs) in Kazakhstan as of January 1, 2019, is 21,901.9 MW, including by fuel type: coal-fired PPs – 13,236 MW; gas power plants - 5,699.7 MW; HPPs (large) - 2,446.6 MW; RES (including small hydropower plants) - 531 MW. The average age of equipment of power plants in Kazakhstan at the end of 2018 was 32 years. Over the previous five years, it has increased by 3 years. The capacity of the oldest equipment commissioned over 70 years ago is 0.54% (118 MW) of the total installed capacity of power plants, and the capacity of power plants commissioned over 30 years ago is 54.3% (11,892 MW). The level of depreciation of electrical networks in Kazakhstan is about 60%. Losses of electric energy in the main electric networks (NPG RK) range from 5 to 7%, in the networks of regional electric grid companies - about 12% and are practically optimal for networks of this class.

From a low-carbon transition point of view, structural transformation, and a shift in focus towards low-emission industries are inevitable. In this aspect, Kazakhstan cannot stand aside and must move in step with all states.

As some authors note, the decarbonization of the national economy of Kazakhstan requires the adoption of drastic measures to improve the institutional framework; developing measures and strategies for low-carbon development; energy efficiency and implementation of the best available technologies in all sectors of the national economy; development renewable energy sector and expanding cooperation with international organizations and global funds on low-carbon development issues.

It becomes obvious that the pandemic and the energy crisis, brought down the traditional economic structure and, at the same time, served as a powerful catalyst for "green" change. In this regard, the importance and relevance of developing national long-term low-carbon development strategies. Under the current conditions, according to UN experts, the low-carbon strategy should become the main strategic document for the country's economic development, which should define goals, priorities, and key areas in context with the global low-carbon trend.

Most of Kazakhstan's trading partners have already announced comprehensive climate change policies, and some are already actively pursuing ambitious decarbonization strategies. The European Union and the US are aiming for carbon neutrality by 2050, China by 2060.

Kazakhstan has identified 2 target indicators for the energy sector:

1. Reduce greenhouse gas emissions by 2030 by 31% below 1990 levels in 2030.
2. Reducing greenhouse gas emissions by 2060 by 97% below the 1990 level.

The largest reductions in greenhouse gas emissions in the energy sector will be achieved through a change in the energy mix and a shift towards more sustainable sources of energy

by phasing out the amount of fossil fuels burned, switching to the use of electricity and heat instead of direct combustion of fossil fuels, and increased use of natural gas and renewable energy sources.

The total share of renewable energy sources will grow from 2% in 2020 to 72% in 2060. This growth will be driven primarily by the massive expansion of solar and wind power generation, as well as the growing share of biofuels and geothermal energy.

In 2060, solar energy will account for up to 46% of all electricity generation and 56% of renewable electricity, while wind energy will account for 33% and 40%, respectively.

Significant transformations will be required in the production of electricity and heat, which will lead the sector to almost net carbon neutrality by 2060.

In the long term, the use of renewable energy sources will be accompanied by energy storage systems, which will regulate the supply of electricity and better integrate renewable energy sources into the energy system.

Target indicators to produce electricity by type of source for 2030, 2040, 2050 and 2060 are set according to Table 1.

If currently electricity and heat account for about 30% of energy consumption, in 2060, under the carbon neutrality scenario, they will cover more than two thirds of energy consumption.

The share of fossil fuels, by contrast, will decline from the current 69% to 6%, mainly due to the gradual phase out of coal and the reduction of oil and gas use, despite the growth of the economy.

End-demand will shift towards low-carbon fuels such as biofuels and hydrogen in areas where the transition to electricity is still difficult.

Reducing the final demand for energy requires significant transformation in sectors such as transport, buildings, and industry.

As part of the implementation of the Doctrine, target indicators are set for the final demand for energy by type for 2030, 2040, 2050 and 2060 according to Table 2.

The urgency of decarbonizing energy systems has increased since the entry into force of the Paris Climate Agreement in 2016. The Paris Agreement is a legally binding international treaty on climate change. The objective of the Paris Agreement is to keep the increase in global average temperature well below 2 degrees Celsius above pre-industrial levels, while efforts are made to limit the increase in temperature to 1.5 degrees Celsius. To achieve this strategic goal, countries are striving to pass the peak of global greenhouse gas emissions as soon as possible.

The Paris Agreement is a key element of the multilateral climate process. This is the first ever legally binding document that brings

Table 1: Electricity generation by types of sources, billion kWh

	Carbon neutrality			
	2030	2040	2050	2060
Coal-fired power plants	33.5	13.3	0.2	0.0
Gas power plants	39.8	70.7	78.6	102.6
Oil products	0.3	0.2	0.1	0.0
Hydropower	23.2	25.4	25.4	19.5
Wind energy	21.0	97.3	173.3	201.7
Solar energy	12.6	48.8	157.6	283.5
Biomass	1.6	1.6	3.2	4.5
Total	132.1	257.3	438.3	611.8

Table 2: Final energy demand by type

Types of energy	Carbon neutrality			
	2030	2040	2050	2060
Coal	3503	413	210	24
Oil and oil products	13000	7566	4043	2031
Natural gas	8518	6435	2728	1130
Electricity	8397	12973	19290	23988
Thermal energy	7087	9271	10095	10939
Biomass	380	3090	5286	5770
The sun	0	175	937	1198
Geothermy	376	469	731	1050
Hydrogen	392	3031	5000	5750
Total	41654	43423	48321	51880

countries together to achieve a common goal regarding combating and adapting to climate change (UNFCCC, 2016).

The Glasgow Climate Pact highlights the urgency of scaling up climate action and support, including funding, capacity building and technology transfer, in line with the best available science. Only if we do this can we collectively increase our adaptive capacity, strengthen our resilience, and reduce our vulnerability to the impacts of climate change. The agreement also emphasizes the importance of considering the priorities and needs of developing countries.

As part of the Glasgow Climate Pact, all parties agreed to revise in 2022, their current 2030 emission targets and strengthen them. A new work program was created to build ambition mitigation goals, and the countries agreed to hold an annual event at a high level to discuss the ambitious goals for 2030. The Glasgow Climate Pact will also give impetus to work on long-term strategies and keeping them relevant (UNFCCC, 2021).

Decarbonization implies a reduction in carbon dioxide (CO_2) emissions. Decarbonization is applied in two directions:

1. The economy as a whole - implies a reduction in CO_2 emissions per unit of GDP (ton/US$/person),
2. Energy system economy - reduction of CO_2 emissions per unit of energy produced (kg/barrel).

Directions of decarbonization: electrification, decarbonization of power generation, energy efficiency.

Over the course of its development, the world economy has experienced several energy transitions, moving from charcoal to hard coal, then dominated by oil, and now the consumption of natural gas is booming.

Previously, energy transitions were guided by convenience and cost competitiveness, but now environmental aspects of choosing energy carriers are becoming important (Yessekina, 2021).

One of the global trends in the modern world is the discussion of the practical transition of countries to the principles of a green economy within the framework of the Paris Climate Agreement, ratified by 197 countries of the world (Pranjjal, 2021). Realization of the stated goal - to prevent the temperature threshold from rising above 2°C - requires virtually a complete rejection of the use of hydrocarbon raw materials, technologies that contribute to significant environmental imbalances and carbon dioxide emissions already in the second half of this century.

In this regard, the governments of the countries have begun to develop, and several countries in Europe and Asia have adopted at the legislative level, national climate policy strategies aimed at achieving carbon neutrality by 2050-2060. The main direction of its achievement, according to the world community, is a low-carbon development path. To date, more than 110 countries have committed to become carbon neutral by the deadline. Leading global corporations such as Apple, Volvo, Bosch, BP, Volkswagen and others have also supported this global trend by announcing their goals for the transformation of the structure of production and the introduction of energy efficient and low-carbon technologies (OECD, 2020).

The crisis associated with the global pandemic led to a drop in demand for almost all traditional energy sources an 8% decrease in coal demand, a 5% decrease in natural gas demand, and oil demand fell so that exchange prices for oil futures were in negative zone. At the same time, energy with low greenhouse gas emissions has proven to be more sustainable. According to the forecast, its contribution to the generation of electricity in the whole world should be about 40%. The green transport sector showed resilience to change for example, Tesla's revenues in 2021 grew by 48% compared to the same period last year, which allowed the company to show net profit for the first time. In general, it can be stated that "the crisis caused by the pandemic brought down the traditional economic structure and at the same time served as a powerful catalyst for green change, including the accelerated development of low-carbon development strategies" (Yessekina, 2018).

Of course, a change in the economic paradigm opens new markets and new opportunities, however, to take advantage of them, not only the implementation of an appropriate economic policy by the state, but also the efforts of business are required. Development of innovative products in the energy saving market. Ensuring decarbonization using modern innovative tools and equipment (Dnishev, 2015).

However, in this regard, there are difficulties both in promoting innovative products to the market and in applying marketing strategies in the energy market.

The activities of companies in the energy market of Kazakhstan should be aimed not only at the production of energy itself, but also at the introduction of infrastructure for objective measurement of CO_2 emissions from industrial enterprises, the development of tools to reduce these emissions, the implementation of climate projects to increase the absorption of greenhouse gases by natural ecosystems, and marketing and trading of carbon credits and certificates. Enterprises providing such services on the market have only one promotion tool - the country's legislation. However, in a competitive environment, this method is not enough. The application of a marketing strategy in the implementation of the overall development strategy of an enterprise is a very important and necessary element of economic success and efficiency.

In this connection, the choice of a marketing strategy becomes an urgent issue in the energy market. Given the innovative nature of products and services and based on international experience, the best strategy for promoting innovative energy saving services in the Kazakhstan market is servitization.

Servitization is an innovative process related to the business model of an enterprise, which will lead to increased productivity and customer satisfaction, as well as an increased competitive advantage.

Servitization brings benefits not only to suppliers, but also to customers by reducing risks and stabilizing maintenance and support costs. According to the business-oriented approach of the emergence of the servitization strategy, companies should switch to customer satisfaction, that is, to offer integrated solutions or product-services. By focusing on integrated solutions, manufacturers can improve their position in the value chain, add value to their offerings, and improve innovation capacity (Maldynova, 2020).

The changed economic conditions have significantly affected the service, which has become a key success driver for a competitive business. International experience in the business environment proves that companies that sell not only products, but also provide services that can tie the client to a long-term after-sales service are successful (Oliva, 2013). The trend in the market is the situation when enterprises are transformed into providers of integrated solutions that meet the wishes of customers, and therefore, the implementation of such a concept requires significant changes in processes, technologies, and strategies.

It must be understood that the modern market requires the development of innovations to remain competitive, which cannot be implemented and developed without a competent marketing strategy. One of the relevant strategies for the industrial market now is servitization, which is gaining more and more development (Greenstein, 2010).

2. METHODOLOGY

To measure the readiness to apply the servitization strategy and to research the attitude of the Kazakhstani energy market participants to this marketing strategy, a scientific research was carried out.

The research method is a quantitative method of collecting primary data - a survey. A survey is a method of collecting information

based on finding out the opinions of different people on a particular issue and based on which conclusions are drawn about the state of society, about its development trends (Davletova, 2017)

The purpose of the survey among experts of the energy market is to study the marketing strategy of servitization and the possibility of its penetration into the enterprises of the energy market of the Republic of Kazakhstan.

Servitization is becoming a sustainable trend in the global market and service delivery is now a fundamental factor in competitiveness (Baines, 2013).

The analysis of the data obtained because of the survey was carried out using the SPSS data analysis program. This computer program is designed for statistical data processing, is one of the market leaders in the field of commercial statistical products designed for applied research in the social sciences.

The novelty of the research is in two key points:
1. For the first time, research was conducted on the motivation factors for servitization in the energy market of Kazakhstan.
2. For the analysis, several factors were applied that can explain most of the motivational factors of servitization that contribute to greater enterprise productivity (Maldynova, 2018).

Research questions that were posed to the researchers:
1. How do customers in the energy market feel about servitization?
2. What might motivate Kazakh energy companies to adopt a servitization strategy?
3. How does motivation affect the level of servitization in industrial companies in Kazakhstan?

Based on the research questions posed, the authors postulated the following hypotheses:
H1: A high level of motivation of the company to apply the servitization strategy has a positive effect on the level of servitization in the company.
H2: A high level of customer motivation to apply the servitization strategy has a positive effect on the level of servitization.

To test the hypotheses, based on previous studies, variables were identified - dependent and independent. Independent - Servitization level which consist of 12 factors. Depended variables are X1 - Company motivation level (consist of 16 factors) and X2 - Level of customer motivation (consist of 6 factors).

The data array was the primary data obtained during the survey. The survey was conducted among experts from the enterprises of the energy market of Kazakhstan.

The population for this research is enterprises with renewable energy facilities (Hsu, 2017).

The sample size is calculated by the formula:

$$SS = Z2^* (p) * (1-p)/C2 \quad (1)$$

Z = Z factor (e.g. 1.96 for 95% confidence interval)
p = percentage of respondents or responses of interest, in decimal form (0.5 by default)
c = confidence interval, in decimal form (e.g. 0.04 = ±4%)

Confidence probability shows with what probability a random answer will fall into the confidence interval, that is, it is the accuracy of the sample. As a rule, 95% is used, but in conditions of small budgets and for small samples, when high accuracy is not needed, the probability can be sacrificed and lowered to 90% and even to 85%.

Confidence interval - error, sets the range of the part of the distribution curve on both sides of the selected point, where answers can fall.

Percentage of responses. The applied formula assumes that there are two possible answers to the given question: "yes" or "no", "white" or "black", and so on. The more equal both answers are, the closer the proportion is to 50/50, the larger the sample should be taken. Therefore, if this ratio is not known in advance (and this usually happens before the start of research), then 50% should be set (Nunkoo, 2021).

Thus, the general population amounted to 96 enterprises. Sample, according to the calculated formula - 76 enterprises.

Object of research: enterprises with facilities for the use of renewable energy sources providing services in the energy market of Kazakhstan.

3. RESULTS

First, an assessment of the level of servitization in the energy market was carried out. The average score was 2.1 points in the market. The assessment was carried out on a five-point scale for 12 indicators: Training (1.1), Restoration and repair of spare parts (1.4), Outsourcing of labor resources (1.6), Spare parts service (1.6), Service personnel support (2.1), Repair and restoration of breakdowns (2.1), Product mounting (2.1), Product disposal (3.2), Remote diagnostics of breakdowns and equipment (3.2), Constant equipment monitoring (3.2), System integration of products (3.3), Personnel consulting (4.1).

From this assessment, it can be concluded that the level of servitization in the energy market of Kazakhstan is at a low level. It is necessary to carry out marketing activities to promote and actual application of this strategy.

To test the hypothesis H1, an analysis was made of the dependence of the level of servitization on the level of motivation for the introduction of servitization in the company, that is, the variables Y and X1.

To test the H2 hypothesis, an analysis was made of the dependence of the level of servitization on the level of motivation for the implementation of servitization by the client, that is, an

analysis of the relationship between the variables Y and X2 was carried out.

As a result of the analysis, it can be concluded that the role of services in the Kazakhstani market is significantly increasing. Energy enterprises of the country should strive to integrate the production and sale of the product itself with the provision of additional services. Servitization is becoming increasingly important, becoming a factor in the competitiveness of an enterprise both nationally and globally (Wolfgang, 2017).

After assessing the level of servitization in the energy market of Kazakhstan, the hypotheses H1 and H2 were tested using the SPSS analytical program. The level of servitization and motivation of the enterprise and customers in the study is measured using the factors given in the questionnaire and evaluated on a Likert scale from 1 to 5 (Ankur, 2015). Cronbach's Alpha coefficient (Cronbach, 2004) was used to test the internal consistency of characteristics describing servitization and motivation for its use. Table 3 shows the results of the analysis of the degree of reliability of reflecting the theses of the questionnaire for each selected characteristic of servitization and the motivation for its use (Table 3).

The value of the Krombach's Alpha coefficient is from 0.689 to 1, that is, the internal reliability of the theses is confirmed.

For an effective transition to a servitization strategy, it is necessary to find out the level of motivation of energy market companies and their customers, as well as to identify the factors that have a dominant influence on the level of servitization (Almquist, 2019). PLS analysis of the relationship of variables was carried out in the SPSS program (Joseph, 2016) (Figure 2).

The correlation coefficient R-squared for the variable "Level of servitization" is 0.7, that is, more than 78% of the variance of this design is explained by the constructed model (Table 4).

Table 3: Values of Cronbach's alpha coefficients for explanatory variables

Variable	Cronbach's alpha coefficient
customer motivation level	1,000
level of company motivation	0.757
servitization level	0.689

Compiled by the author based on analysis by the SPSS program

Table 4: Results of analysis in the SPSS program

R	R square	Adjusted R square	Std. error of the estimate
0.335[a]	0.112	0.078	0.27278

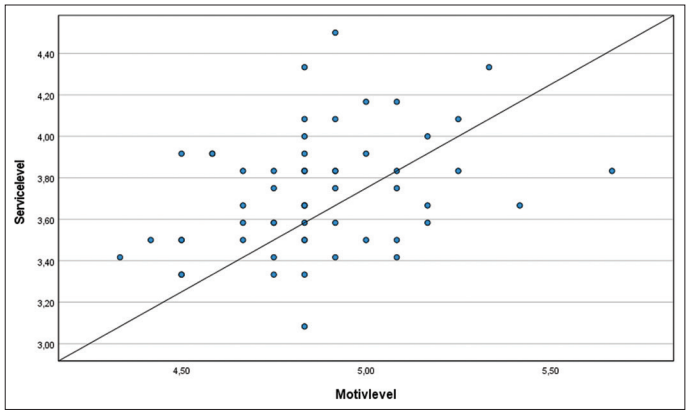
Compiled by the author based on analysis by the SPSS program

For a detailed analysis of the test results, Table 5 shows the effect of the test:

The postulated hypothesis H1: "the higher the level of motivation of the company to apply the servitization strategy, the higher the level of servitization in the company" was confirmed based on the results obtained: $\beta = 0.462$, $t = (5.782) > 2.005$, $P (0.001) < 0.005$ – the relationship is proven.

At the same time, the postulated hypothesis H2: "the higher the level of customer motivation to apply the servitization strategy, the higher the level of servitization at the enterprise" is not confirmed based on the results obtained: ($\beta = -0.104$, $t = (0.643) < 2.005$, $P = (0.520) > 0.05$) - the relationship between the motivation of clients and the level of servitization is not significant (Figure 3).

Figure 2: Results of PLS-analysis in the SPSS package



Source: Compiled by the author based on analysis by the SPSS program

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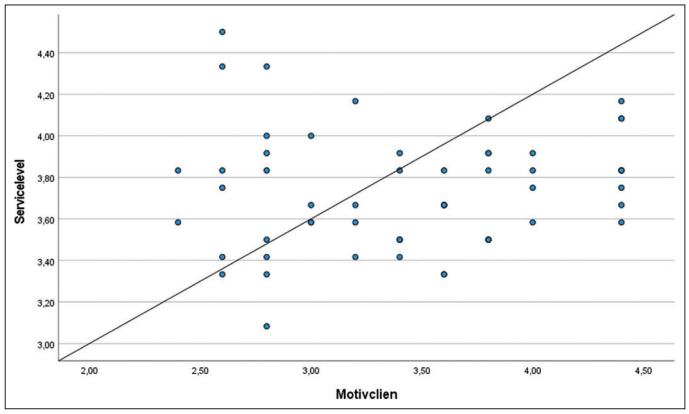

Source: Compiled by the author based on analysis by the SPSS program

Table 5: Summary statistics of the model in the SPSS program

	Mean	Minimum	Maximum	Range	Maximum/Minimum	Variance	N of Items
Item means	3.728	3.175	4.281	1.105	1.348	0.126	12
Item variances	0.801	0.495	1.115	0.586	2.207	0.053	12
Inter-item covariances	0.017	−0.203	0.516	0.719	−2.542	0.024	12
Inter-item correlations	0.021	−0.280	0.983	1.263	−3.514	0.049	12

Compiled by the author based on analysis by the SPSS program

Thus, based on the analysis, it can be argued that in the energy market of Kazakhstan, the level of motivation of the company affects the level of servitization, but at the same time, the level of servitization is not affected by the level of motivation of customers to use the servitization strategy in relation to them.

4. DISCUSSION AND CONCLUSION

Under the conditions of global decarbonization, carbon energy resources will lose their role as a driver of economic growth and will slow down the economic development of the country, as outdated production potential will divert more and more country potential and funds and provide less and less return for the national economy and budget (Blazev, 2021). In this regard, the strategic goal of the governments of carbon countries, including Kazakhstan, should not be to maintain positions in the world energy sector of the last century, but to speed up technological modernization and decarbonization of production with access to new markets for low-carbon fuels and green energy, the development of modern science-intensive technologies for their production, storage, transmission, as well as large-scale modernization of technological systems based on green, resource-saving and digital technologies, the successful implementation of which is most effective when applying the servitization strategy. Only with the choice of these strategic priorities will it be possible to ensure the competitiveness of the national energy and economy in the future and ensure long-term sustainability for countries (Lawrence, 2021).

Now the world community is promoting the idea of decarbonization - the restructuring of the economy and energy systems to drastically reduce CO_2 emissions, which in the future will reduce the burden on the environment (Rahman, 2011).

Kazakhstan has taken a course towards the decarbonization of the economy. To achieve this goal, two billion trees will be planted, and carbon capture storage technology will be introduced. This is an expanded use of renewable energy. By 2060, we plan that more than 80% of electricity production will be based on clean, alternative energy.

Decarbonization of the economy is also impossible without development carbon capture and storage technologies and use hydrogen energy. So, given the projected growth use of hydrogen energy Kazakhstan interested in cooperation with international financial institutions and investors, in order to find technological solutions for development, storage, transportation and commercialization of technologies in the field creation of infrastructure for hydrogen energy.

Decarbonization and its consequences are already inevitable, with all its pluses and minuses. This process has already been launched, and the sooner energy market enterprises accept and adapt to it, the less painful this transition will be. In this connection, it is especially important to apply marketing approaches for decarbonization.

Servitization is becoming one of the modern marketing approaches in the formation of a decarbonization strategy for an energy market enterprise. This is due to the fact that the process of decarbonization of the economy is not just a set of measures to reduce carbon energy resources, but a long-term comprehensive development plan that includes the introduction of innovative products and solutions, the implementation of which is not possible without quality service. Servitization for the energy market is a concept whereby businesses expand the range of services they offer, which ultimately go far beyond the standard supply of spare parts or typical after-sales service (Viljakainen, 2014).

Servitization is a new strategy for the energy market in Kazakhstan and could become a fast-growing trend. This strategy will contribute not only to decarbonization and environmental improvement in the country, but also to increase competitiveness in the market.

Servitization is not just a service-oriented marketing tactic, but a strategic reorientation that includes increasing profits, brand capitalization, customer loyalty (Dmitrijeva, 2022).

So, because of the research, the authors concluded that the idea of decarbonization is widely promoted in the Kazakh energy market, which has not only environmental, but also economic significance. Marketing is poorly developed in the market, traditional services dominate.

The global energy mix is shifting from fossil fuels to renewable energy sources. Today, there are many examples when both private and public organizations are actively working to decarbonize the economy. The acceleration of energy transformation processes is accompanied by the formation of new ecosystems and the emergence of new technologies. This contributes to the growth of renewable energy sources, the development of new energy carriers, energy efficiency improvements, lower emissions and the creation of new markets for carbon and other by-products in a vibrant circular economy.

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