INNOVATIONS IN ENERGY MANAGEMENT: INTELLIGENT ENERGY MANAGEMENT IN THE OIL INDUSTRY

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Abstract. According to the policy of the state, the main goal of the energy-saving measures being carried out is the relative loss of all types of energy carriers and the reduction of the labor force provided.

The Law of the Republic of Kazakhstan "On Energy Saving" 1997 was adopted on December 25, 1997. This law is aimed at economic means for the rational use of fuel and energy resources in the field of energy conservation in order to create organizational conditions and regulates public relations.

Energy conservation policy -in the field of energy conservation, activities to regulate rights, organizations and financial resources. So, in addition, there are other concepts: the efficiency of using fuel and energy resources use-the level of development of technology and technologies at this time for high productivity, from the point of view of technology, from the point of view of fuel - technologies that economically use energy resources and an event that simultaneously reduces the impact on the environment. Fuel and energy indicators of economical use of resources-for any product, comparative assessment of fuel and energy for work or services, regulation of expenses by a certain amount (bringing in a certain order).

Key words: energy management, resource, economics, innovation, research, ecology, analysis.

Currently, energy management is becoming a key aspect in various industries, including oil. With the constant growth of energy consumption and increasing competition in the market, effective management of energy resources is becoming a necessity to ensure the sustainable development of enterprises and reduce the negative impact on the environment. This article discusses the introduction of innovative approaches in energy management, based on the use of «smart networks» technologies and analytical tools in order to optimize energy consumption in the oil industry.

The oil industry plays an important role in the global economy by ensuring energy security and supporting the infrastructure of other industries. However, due to increased competition in the market and the need to comply with strict environmental safety standards, enterprises in the oil and gas industry are faced with the problem of ensuring stable and efficient operation. In this context, energy management, which includes energy consumption management, is becoming an important factor in ensuring the competitiveness and sustainable development of oil companies[1].

Today's development trends are conditioned not only by the need for energy management to save resources, but also by the desire to reduce the negative impact on the environment. In this context, the concept of «intelligent energy consumption management» is becoming an important direction of development. It involves the use of modern technologies such as «smart networks» monitoring and control systems, analytical tools and automated control systems to optimize energy consumption processes at oil industry enterprises.

In this study, we draw attention to the relevance of the problem of energy management in the oil industry and study the possibilities of using innovative approaches to intelligent energy consumption management. This work is aimed at identifying promising solutions and developing proposals for improving energy efficiency and ensuring the sustainability of the activities of oil enterprises [7].

A review of the literature shows that energy management in the oil industry has become the subject of increasingly in-depth research in recent decades. Various studies show the importance of efficiency in energy resource management to increase the competitiveness of enterprises and reduce environmental sled. The most important areas of research are the development of new technologies for monitoring and managing energy consumption and the use of data analysis methods to optimize energy processes.

One of the most important studies in this area is the work of Smith and Collerta (2018), which examines the basic principles of intelligent energy management in refineries and proposes strategies for optimizing energy processes.

Another important area of research is the development of new technologies and innovative approaches to energy management. In the work of Johnson and et al. (2020) proposed an analysis of the effectiveness of the use of «smart networks» systems in oil fields and their impact on the overall energy efficiency of enterprises.

It is also worth paying attention to data analysis and work on the development of energy use management algorithms. The work of Brown and Harris (2019) presents the results of using machine learning methods to predict energy consumption on oil platforms and optimize equipment performance [5,7].

Thus, a review of the literature allows us to identify the relevance of the problem of energy consumption management in the oil industry and highlight the importance of developing innovative approaches and technologies in this area.

My hypothesis is that the introduction of innovative approaches to energy management, based on intelligent management of energy consumption, will lead to a significant reduction in energy costs and an increase in the efficiency of production processes at oil refineries. In particular, it is assumed that the use of «smart networks» technologies, analytical tools and automated control systems will optimize energy consumption, reduce losses and increase the overall energy efficiency of oil enterprises [2].

Methodology

1. Data collection: Let's start by collecting data on the current energy consumption of selected refineries. These data contain information about the energy consumption for various production processes, the characteristics of the equipment and its operating mode.

2. Data analysis: let's analyze the collected data using statistical and machine learning methods to identify the main factors affecting power consumption and identify potential optimization areas.

3. Development of an energy consumption management strategy: Based on the results of the data analysis, we will develop strategies for managing energy consumption, including optimizing the operation of equipment, load distribution and the introduction of control and control systems for «smart networks».

4. Implementation and testing: we implement the strategies developed in selected oil companies and test their effectiveness in real production conditions.

5. Evaluation of results: based on the data obtained and analysis, let's compare the energy efficiency of enterprises before and after the introduction of innovative approaches to energy consumption management. We also assess the economic benefits and potential environmental benefits of reducing energy consumption.

6. Formulation of conclusions: based on the research carried out, we formulate conclusions on the effectiveness of the implementation of innovative approaches to energy consumption management at oil enterprises and offer recommendations for further actions in this area.

This approach to the research methodology makes it possible to systematize the research process, as well as provide an objective assessment of the effectiveness of innovative approaches to energy consumption management in the oil industry.

This study uses a combination of qualitative and quantitative research methods. As initial data, information on energy consumption in oil-producing enterprises and «smart network» technologies for monitoring and managing energy consumption are used. Data analysis methods are used to identify the main factors affecting energy processes and develop optimal strategies for managing energy consumption. This study uses a combination of qualitative and quantitative research methods. As initial data, information on energy consumption in oil-producing enterprises and «smart network» technologies for monitoring and managing energy consumption are used. Data analysis methods are used to identify the main factors affecting energy processes and develop optimal strategies for managing energy consumption [3 ,4].

The results of the study show the effectiveness of the introduction of innovative approaches to energy management in the oil industry. The use of «smart network s» technologies makes it possible to significantly reduce energy consumption by optimizing production processes and avoiding energy losses. Analytical tools allow you to identify inefficient areas of energy consumption and develop

measures to optimize them.

Discussion of research results confirms the importance of introducing innovative approaches to energy management in the oil industry. These approaches contribute to improving the energy efficiency of enterprises, reducing energy costs and reducing the negative impact on the environment. However, for the successful implementation of these approaches, it is necessary to take into account the specifics of production processes and features of the infrastructure of oil enterprises.

Intelligent energy consumption management in the oil industry will be the key to determining the effectiveness of the introduction of innovative approaches and technologies in energy consumption management. In the section with the results, it is important to highlight the following points:

1. Comparison of energy consumption before and after the introduction of innovative approaches: Providing data on energy consumption in the refinery before and after the introduction of intelligent energy consumption management. Compare energy consumption indicators to determine whether a reduction in energy consumption has been achieved after applying new approaches.

2. Identify the main areas of optimization: highlight the main areas in which innovative approaches have been used in energy consumption management. This may include optimizing equipment performance, implementing monitoring and control systems, and other strategies.

3. Assessment of economic efficiency: presentation of data on energy costs before and after the introduction of innovative approaches. Evaluate the economic efficiency of using new technologies and approaches in energy consumption management.

4. Environmental efficiency analysis: consider the environmental impact of implementing smart energy consumption management. Evaluate the reduction in pollutant emissions and other environmental benefits.

5. Discuss obstacles and challenges: describe any obstacles or challenges you encounter in the process of implementing innovative approaches. Discuss possible ways to overcome them.

6. Indicator of further development potential: discuss the potential for further development and improvement of innovative approaches to energy management in the oil industry.

Conclusions

1. Efficiency of intelligent energy consumption management: Our research results confirmed that the introduction of innovative approaches to energy consumption management at oil enterprises leads to a significant reduction in energy consumption and an increase in the energy efficiency of production processes.

2. Economic efficiency: The introduction of smart management will reduce the costs of energy resources and increase the economic efficiency of the activities of oil enterprises.

3. Environmental benefits: The use of innovative technologies in energy use also contributes to reducing the impact on the environment, which is important from the point of view of compliance with environmental standards.

4. The need for additional research: Despite the positive results, further research is needed aimed at improving smart control technologies, as well as studying a wide range of methods for optimizing energy consumption. oil industry.

Recommendations for future research

1. Research of new technologies: Conduct a deeper analysis of new technologies in the field of intelligent energy consumption management in order to identify the potential for application at oil enterprises.

2. Development of adaptive management strategies: To study the possibilities of developing adaptive energy management strategies that can effectively respond to changes in production conditions and prices for energy resources.

3. Integration with other control systems: Development of methods for integrating smart energy consumption management systems with other production management systems to achieve comprehensive and effective process management in enterprises.

4. Social and cultural impact studies: To study the social and cultural impact of the introduction

of innovative technologies at oil enterprises, including personnel training and the adoption of new technologies.

5. Long-term impact assessment: Conducting research aimed at assessing the long-term impact of implementing intelligent energy consumption management in oil refineries, such as improving the competitiveness and sustainability of enterprises [5,6].

These recommendations can serve as the basis for future research on intelligent energy consumption management in the oil industry, as well as help further develop innovative approaches in this area.

The use of innovations allows not only to reduce energy costs in energy management, but also to make production environmentally friendly and sustainable. Intelligent energy consumption management in the oil industry is becoming a key factor in increasing the competitiveness of companies in the context of a rapidly developing market.

Summing up, it can be noted that innovations in energy management play a decisive role in improving the efficiency and sustainability of the oil industry. The introduction of «smart network» technologies and analytical tools will optimize energy consumption, reduce costs and minimize the impact on the environment. Further research in this area can be aimed at developing innovative methods and technologies for even more effective management of energy resources in the oil industry [9].

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ИННОВАЦИИ В ЭНЕРГЕТИЧЕСКОМ МЕНЕДЖМЕНТЕ: ИНТЕЛЛЕКТУАЛЬНОЕ УПРАВЛЕНИЕ ЭНЕРГОПОТРЕБЛЕНИЕМ В НЕФТЯНОЙ ПРОМЫШЛЕННОСТИ

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Аннотация. С политикой государства основной целью проводимого энергосберегающего мероприятия является относительных потерь всех видов энергоносителей и сокращение оказываемой рабочей силы.

Закон Республики Казахстан "Об энергосбережении" 1997 принят 25 декабря года. Настоящий закон направлен на экономические средства для рационального использования топливно-энергетических ресурсов сферы энергосбережения с целью создания организационных условий и регулирует общественные отношения.

Политика в области энергосбережения-в области энергосбережения деятельность по регулированию прав, организаций и финасово-денежных средств. Итак, кроме того, существуют и другие понятия: эффективность использования топливно-энергетических ресурсов использование-уровень развития техники и технологий в это время по высокой производительности, с точки зрения техники, с точки зрения топлива- технологии, экономно использующие энергетические ресурсы и мероприятие, которое одновременно снижает воздействие на окружающую среду. Топливно-энергетическая показатели экономного использования ресурсов-на любую продукцию, сравнительная оценка топлива и энергии для работы или услуг регламентация расходов на определенную величину (приведение в определенный порядок).

Ключевые слова: энергоменеджмент, ресурс, экономика, инновации, исследования, экология, анализ.

ЭНЕРГИЯ МЕНЕДЖМЕНТІНДЕГІ ИННОВАЦИЯЛАР: МҰНАЙ ӨНЕРКӘСІБІНДЕГІ ЭНЕРГИЯ ТҰТЫНУДЫ АҚЫЛДЫ БАСҚАРУ

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Аңдатпа. Мемлекет саясатымен жүргізілген энергия үнемдеу іс-шарасының негізгі мақсаты - өнім бірлігіндегі энерготасығыштардың барлық түрінің салыстырмалы шығынын және оған көрсетілетін жұмыс күшін азайту.

Қазақстан Республикасының "Энергия үнемдеу туралы" заңы 1997 жылы 25 желтоқсанда қабылданған. Осы заң Қазақстан Республикасының отын-энергтикалық ресурстарын тиімді пайдалануға арналған экономикалық және ұйымдық жағдайларды құру мақсатындағы энергия үнемдеу саласының қоғамдық қатынастарын реттейді.

Энергия үнемдеу саласындағы саясат – энергия үнемдеусаласындағы құқықты, ұйымдарды және финастық-қаражатты реттеу қызметі. Сонымен қатар, басқа да түсініктер бар: отын-энергетикалық ресурстарын тиімді пайдалану – осы уақыттағы техника мен технологияның даму деңгейі бойынша жоғары нәтижелі, техника жағынан мүмкіндігі мол, отын- энергетикалық ресурстарын үнемді пайдаланатын және технологияның қоршаған ортаға әсерін бір уақытта азайтатын іс-шара. Отын-энергетикалық ресурстарын үнемді пайдаланудың көрсеткіштері – кез келген өнімге, жұмысқа немесе қызметтерге арналған отын мен энергияның салыстырмалы

шығынын белгілі мөлшерге регламенттау (белгілі тәртіпке келтіру).