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New energy utilization in environmental design and realization

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A R T I C L E I N F O

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A B S T R A C T

Energy is an important resource for human society and plays an important role in the development of society. However, due to the growing demand for energy in many countries around the world, the consumption of traditional fossil fuels such as coal is accelerating lead to problems such as resource scarcity, environmental pollution, and energy crisis are becoming increasingly prominent, which greatly restricts the sustainable development of the economy and human society, especially in areas where the utilization rate of new and renewable energy is not high. In order to realize environmental design and reduce pollution and solve problems such as resource shortages, this paper studies the utilization of new energy based on environmental design and realization. The experimental results show that the research on new energy based on environmental design and implementation can improve the utilization efficiency of new energy by 5.31%. This eases the future energy crisis and enables new energy to gradually replace solid resources such as fossil fuels as the main energy consumption. It can also solve the problem of energy shortage, reduce the waste and pollution of old energy in the environment, and improve the protection of the environment.

Contents

1. Introduction

Energy is one of the most important tools for human development and economic development. Energy issues are not only related to political stability and social development, but also related to global political stability and social development, and play a fundamental role in economic and social development. Energy mainly includes non-renewable and new energy, of which non-renewable energy includes metal, soil, coal, oil and other resources, and renewable resources are the new energy mentioned in this article. At present, the research results on non-renewable energy have been very rich, but the research on the utilization of new energy is very little. How to introduce the theory of environmental design and realization into the research on the utilization of new energy is an urgent problem to be solved in the process of developing new energy.

Due to the huge consumption of non-renewable resources, the existing amount of non-renewable resources simply cannot meet the current demand for resources. In order to reduce the consumption of solid energy and provide alternative energy, more and more research teams have begun to study the utilization of new energy. Barwickia J argued that the sun provides an almost unlimited energy resource, but existing solar energy harvesting technologies are too expensive to compete with fossil fuels (Barwickia et al., 2017). Zaichenko V M considered the potential use of various types of biomass for the production of syngas by thermochemical conversion in large-scale plants to further synthesize components of liquid motor fuels (Zaichenko et al., 2020). Yagita M introduced new solutions for efficient energy utilization utilizing new technologies in electric vehicles and fuel cell

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vehicles (Yagita, 2018). To better understand this energy transfer process, Jain *T* demonstrated an energy utilization test that analyzes performance parameters versus time (Jain and Sheth, 2019). All performance parameters of the ultrasonic-hydrogen electrolysis system were analyzed by El-Oliemy RM due to the deteriorating air quality due to the increasing number of spark ignition engines in the world (El-Oliemy et al., 2017). Aiming at the problem of low utilization efficiency of ocean energy, Wanjun W proposed a new type of comprehensive utilization system of ocean energy with hydropower cogeneration (Wanjun et al., 2017). Loow Y L discussed the role of deep eutectic solvents in biomass processing, focusing on the effects of deep eutectic solvents on chemical process selectivity and biomass dissolution (Loow et al., 2017). From this point of view, many teams have carried out research on the utilization of new energy, but few have combined environmental design and realization of the utilization of new energy. In order to better research new energy, this paper introduces the theory of environmental design and realization into the research of new energy.

The environment is closely related to our life, and protecting the environment is of great significance to the sustainable development of human life. In order to realize the design of the environment, many teams have carried out research on this. Fujiwara H developed a new multi-precision arithmetic environment and discussed the design and implementation of interfaces between arithmetic environments to overcome difficulties caused by rounding errors (Fujiwara, 2019). Since there is currently no primary method for evaluating the environmental planning of institutions and organizations in the literature, Serta Güngr conducted a questionnaire survey of court users and court personnel in order to reveal the standards, guidelines and needs of public agency users (Güngr, 2017). Since there is no suitable evaluation framework to determine whether the spatial environment of medical buildings can inhibit the spread of NI. Xiong L constructed the evaluation framework using exploratory factor analysis, validated the complex dominant-influence relationship, and used the decision experiment and evaluation laboratory to prioritize the criteria in the evaluation framework (Xiong et al., 2021). In order to reduce and prevent the chance of crime happening, Affif A M aims to use a descriptive qualitative approach to make a campus motorcycle parking lot model (Ouhame et al., 2021). The trend in Mahmood S Ad is to design and implement a moving object extraction based home monitoring system with a low-cost, powerful and suitable solution for the IoT environment (Mahmood and Abdullah, 2018). The trend in Mahmood S Ad is to design and implement a moving object extraction based home monitoring system with a low-cost, powerful and suitable solution for the IoT environment (Mahmood and Abdullah, 2018). Because the existing disaster information collection and sharing system based on geographic information system cannot deal with large-scale disasters in terms of scalability and operability. Sakuraba A introduced a newly designed disaster state presentation system (Sakuraba et al., 2017). In order to meet the needs of EIA water-saving information management in the process of survey, design and construction management, Wang G used mobile GIS technology to develop an EIA water-saving platform based on traditional B/S structure. And he explored a new working mode of environmental protection engineering design of smart grid projects in the mobile Internet era through engineering practice (Wang et al., 2018). Although many teams have conducted research on environmental design and implementation, few have cited it in the utilization of new energy sources. In order to play the important role of environmental design and realization, this paper introduces the theory of environmental design and realization in the research of utilization of new energy.

With the gradual development of the social system, affected by the energy structure and other issues, coupled with the excessive consumption of non-renewable resources, the sustainable use of energy is facing a series of challenges, resulting in energy crisis and ecological environment pollution and other problems and it affects the sustainable development and utilization of energy. In order to reduce energy consumption and adjust energy structure to protect the environment, this paper studies the utilization of new energy based on environmental design and implementation. By analyzing the current situation of new energy utilization, we can find out the utilization methods that can make new energy sustainable development, improve the existing environmental conditions, and realize the will of environmental protection.

2. New energy utilization system

(1) Intelligent detection environment system

The utilization of new energy is related to the protection and development of the natural environment. In order to better research the utilization of new energy based on the existing environment, this paper adopts an intelligent detection environment system to monitor the environmental changes after the utilization of new energy (Zhou and Zhang, 2020). The block diagram of the system structure is shown in Fig. 1.

As can be seen from Fig. 1, the intelligent monitoring system mainly includes a single-core processor module, a multi-environment sensor module, a solar power module, an LCD display module and a communication module. A solar powered unit powers the system, and each environmental sensor unit sends detected environmental data directly to the processor core. When editing the environmental data, the liquid crystal display module will scroll the environmental data and connect the portable APP application to the processor module core through the communication module. The intelligent environmental monitoring system plays an important role in indicating the direction of utilization of new energy.

(2) How to use solar energy

Among the current new energy sources, solar energy is the best new energy and has a wide range of applications, which can be used all year round (Burns et al., 2018). Solar energy is produced by the combination of hydrogen and helium atoms in the sun releasing large amounts of nuclear energy, which is evolutionary energy from the sun. The energy from the sun is very huge every year. In order to make better use of solar energy, this paper will study the specific utilization of solar energy. Fig. 2 shows how the solar energy is used.

As can be seen from Fig. 2, the current solar energy utilization method mainly converts the radiant energy of solar energy into heat and electricity through solar panels. The specific process is: when the sun emits radiant energy, the solar panel converts the received solar radiation into electricity with a huge voltage through the receiver. After that, the huge voltage is converted into a voltage that can be accepted by household appliances. The converted solar energy will then pass through the electricity meter to provide heat or electricity to the residents in the form of electricity. Since the radiant energy of the sun will be far more than what people usually need, in this case, the converted solar energy will convert the excess electricity through the grid into other power.

(3) How to use water energy

Water is not only directly available for human use, but also an energy carrier (Peng et al., 2017; Xiang et al., 2021). The energy of the sun will cause the water on the earth to enter a cycle mode, and the flow of surface water is an important part of the water cycle process. When a river with a large flow passes through a place with a large terrain drop, it will generate abundant hydropower resources. With the continuous reduction of fossil fuels,

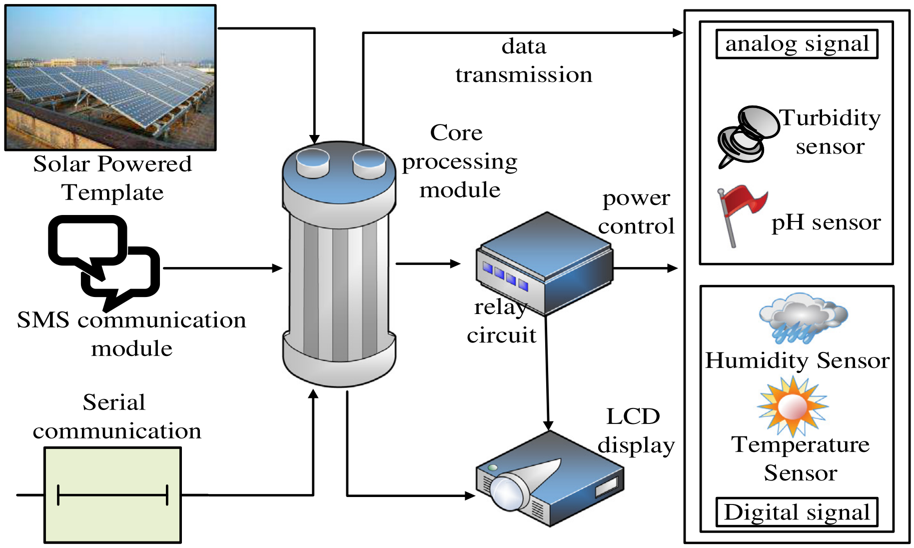

Fig. 1. Frame diagram of intelligent environmental monitoring system.

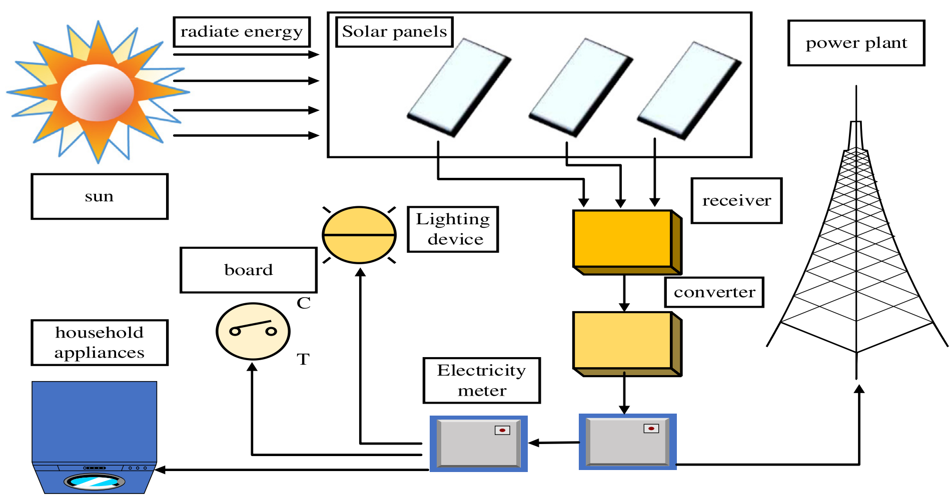

Fig. 2. Diagram of solar energy utilization.

hydropower resources are a very important and promising alternative energy source. The diagram of the utilization of water energy is shown in Fig. 3.

As can be seen from Fig. 3, the volume change of water is the main reason for the production of water energy under the influence of gravity. The specific utilization process of water energy is: After high water sources such as rivers or lakes are converted to low water levels through dams, pressure will be generated, and then power plants will use the pressure or flow of water to affect turbines and rotate them, thereby converting hydraulic power into engines. At the same time, a small amount of water forms water vapor under sunlight, which spreads to all corners of the earth, thereby restoring the distribution of high spring water. In places where the river flow and topography are large, water energy is the new energy with the highest utilization.

(4) How to use nuclear energy

Nuclear energy is one of the most promising energy sources for mankind (Yamazaki and Takeda, 2017). At present, there are two ways to use nuclear energy: one is to decompose heavy metals, such as the decomposition of uranium. The other is a combination of light elements such as deuterium, tritium, and lithium. Heavy metal separation technology has achieved automation and practical application. The technology of combining with light elements is also under study, but whether it is heavy uranium or deuterium–tritium ions, there are huge reserves in the ocean. The use of nuclear energy is shown in Fig. 4.

As can be seen from Fig. 4, in order to utilize nuclear energy, a pressure vessel will be placed in the nuclear reactor, and some control rods will be placed in the pressure vessel to regulate the thermal energy released by nuclear fission in the nuclear reactor. The cooling device in the primary loop heats the coolant through the core, transfers the heat to the water in the secondary or tertiary loop of the steam generator, and then forms steam to drive the turbine generator. In a boiling water reactor, the refrigerant in the primary loop is heated by the core, saturating the steam to a pressure of about 70 atmospheres. After the steam and water are separated and transported, the steam turbine and generator are directly driven, and finally power is supplied to the grid.

(5) Utilization of biomass energy

Biomass energy is the energy provided by living organisms in nature (Mehmood et al., 2018; Zhang et al., 2021). These minerals use biomass as a means of storing solar energy and belong to renewable energy. It is estimated that the energy stored by biomass is twice as much as the world's total energy consumption. In order to improve the energy use structure, this paper studies the

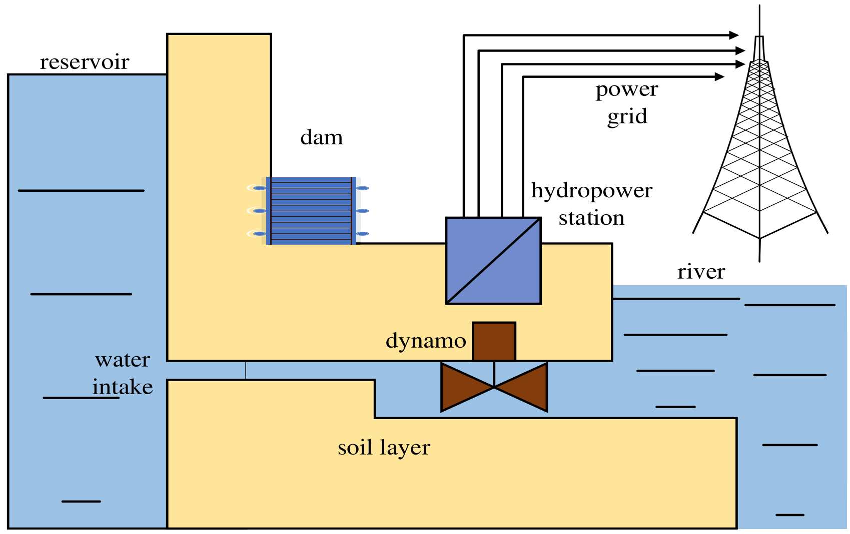

Fig. 3. Diagram of the utilization method of water energy.

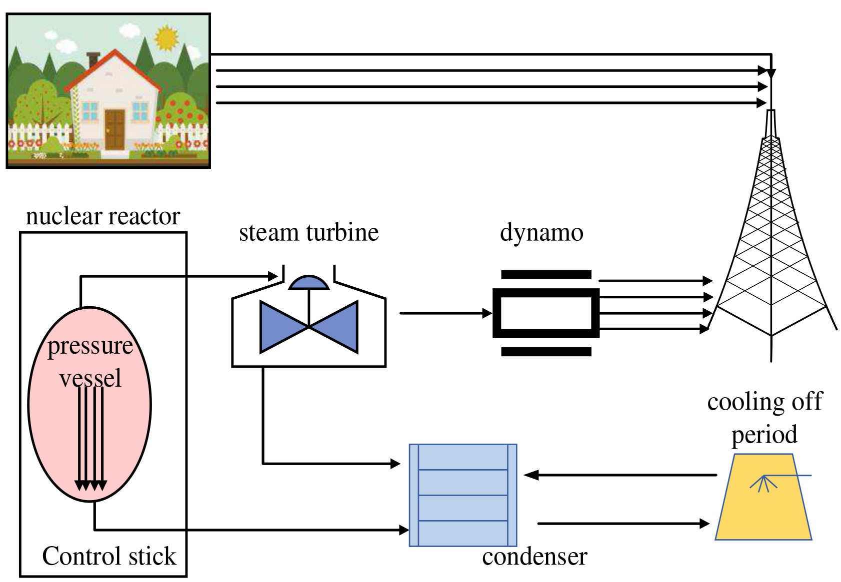

Fig. 4. How nuclear energy is used.

utilization of biomass energy, and the utilization mode of biomass energy is shown in Fig. 5.

It can be seen from Fig. 5 that there are four ways of utilizing biomass energy, namely direct combustion, biotransformation, thermochemical modification and other modifications. Direct combustion is the direct conversion of biologically generated waste into heat or electricity. Bio-conversion is the conversion of biological waste into fuel or electricity through distillation and other means. The thermochemical conversion method is to convert biologically generated wastes into fuels and chemical raw materials by means of gasification, thermal cracking liquefaction and high-pressure liquefaction. Other conversions refer to the conversion of waste into fuel through compression molding, biodiesel and hydrogen production. There are many ways to use biomass energy, but they are generally used to provide heat, electricity or fuel.

3. New energy utilization algorithm

(1) Cutting line speed

$$V_C = \frac{D_m * \pi * n}{1000} \tag{1}$$

Among them, D_m represents the machining diameter, n represents the spindle speed, and the unit is mm.

(2) Adaptive filtering algorithm

Adaptive filtering is a method of signal processing technology developed in the past 30 years. It has stronger adaptability and better filtering performance, so it has been widely used in engineering practice, especially in new energy utilization technology.

$$\begin{cases} \beta(k) = \dfrac{6}{k(k+1)} \\ \alpha(k) = \dfrac{2(2k-1)}{k(k+1)} \end{cases} \tag{2}$$

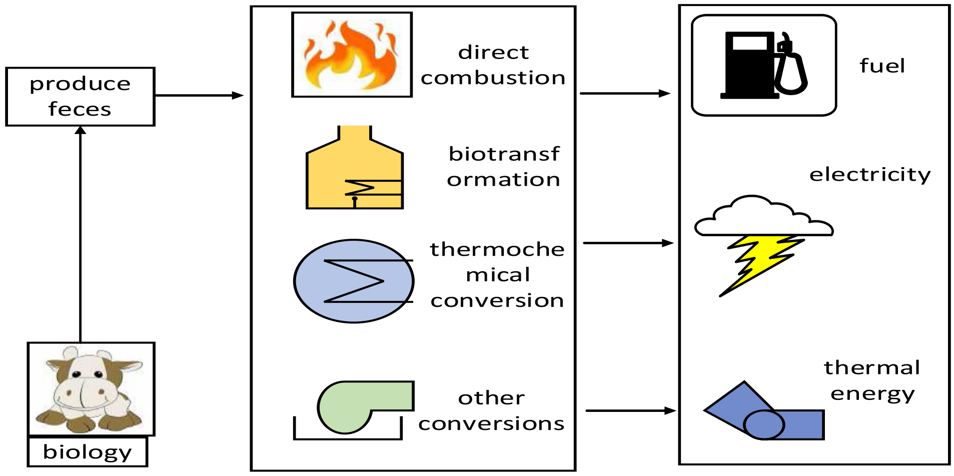

Fig. 5. Diagram of the utilization mode of biomass energy.

(3) Circular wave gate algorithm

The circular wave gate algorithm is technically divided into two separate demarcation segments. The angle and latitude of the central wave gate are ($x0$, $y0$), and the corresponding wave gate radius length is r, then the expression of the circular wave gate is:

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(4) Anchor node distance estimation

According to the number of hops recorded by each anchor session and the coordinate information of other beacon segments (Han et al., 2017), the hop limit is calculated, and its calculation formula is:

$$H = \frac{\sum_{ij} \sqrt{(x_i - x_j)^2 + (y_i - y_j)^2}}{\sum_{ij} h_{ij}} \tag{3}$$

In the formula, (x_i, y_i), (x_j, y_j) beacon nodes are the coordinates of i and j, and the coordinates of h_{ij} are the minimum bounce times between beacons i and j.

(5) Particle swarm algorithm

Since the estimated distance between segments is obtained by multiplying the jump value by the average jump distance, the error between the average jump distances will directly affect the accuracy of the estimated distance. To reduce the error, the average transition distance is adjusted using the average error of hops between nodes to be closer to the actual value, allowing the distance to be optimized.

$$D_{ij}^t = \sqrt{(x_i - y_j)^2 + (y_i - y_j)^2} \tag{4}$$

(6) Normalized average positioning error

$$E = \frac{\sum_{i=1}^{N} \sqrt{(x_r - x_i)^2 + (y_r - y_i)^2}}{R * k} \tag{5}$$

Among them, (x_r, y_r) represents the actual coordinates of the conference, (x_i, y_i) represents the predicted coordinates of the conference, R represents the communication radio of the conference, and k is the number of intervals there.

(7) Work done by non-conservative internal forces

$$W_f = \frac{1}{2}mu^2 - \frac{1}{2}mv^2 \tag{6}$$

$$W_{f'} = \frac{1}{2}Mu^2 \tag{7}$$

(8) Frictional heat generation

The power of the device lost by the system will all become the internal capacity of the system, and its calculation formula is:

$$Q = \frac{1}{2}mv^2 - \frac{1}{2}(M + m)u^2 \tag{8}$$

(9) Probability Density Algorithm

$$P_k = \frac{\Gamma(\sum_{k=1}^{k} \alpha k)}{\prod_{k=1}^{k} \Gamma(\alpha k)} \prod_{k=1}^{k} p_{k}^{\alpha k - 1} \tag{9}$$

where $p_k > 0$, and $\sum_{k=1}^{k} p_k = 1$.

(10) Likelihood function of complete data

$$L\theta = \prod_{i=1}^{n} \prod_{c=1}^{m} [\tau_c f(\, x_i \,; \alpha_c \,)]^{I\,(z_i \;= c\,)} \tag{10}$$

Among them, 1 is the parameter vector of the cth sample; I is the indicative function.

(12) Weight parameters

$$\tau_c^{(t+1)} = \frac{1}{n} \sum_{i=1}^{n} T_{ci}^{(t)} \tag{11}$$

(13) Log-likelihood function

$$LL = \sum_{i=1}^{n} \lg \sum_{c=1}^{m} P_c f_c(x_i) \tag{12}$$

Among them, P_c is the weight of each category, and f_c is the density function of each category.

(14) Node size calculation

$$D = \sqrt{(x_i - x_j)^2 + (y_i - y_j)^2} \tag{13}$$

where i, j are the node positions; x, y are the largest and smallest nodes.

(15) Node threshold calculation

$$D_0 = \sqrt{\frac{\varepsilon f}{\varepsilon m}} \tag{14}$$

(16) Energy consumption formula

Data collection between nodes will generate electricity, and the calculation types are:

$$E_r = l * E_e \tag{15}$$

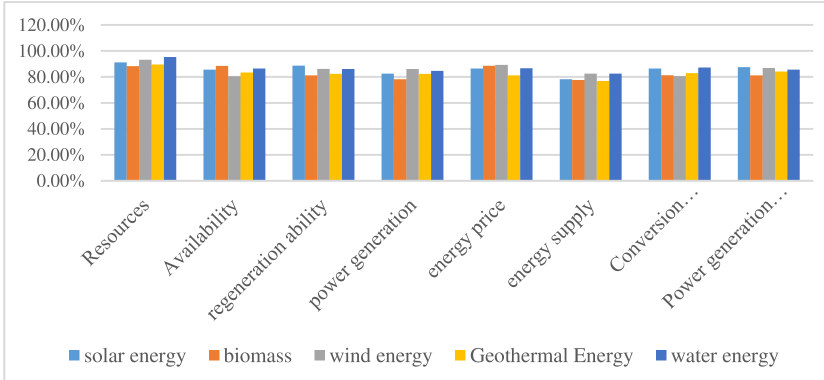

Fig. 6. New energy performance indicators.

(17) Heuristic factor

$$\eta_{ij}(t) = \frac{1}{d_{ij}} \tag{16}$$

where d_{ij} is between node i and node j.

(18) Pheromone concentration

$$\tau_{ij}(t+1) = \tau_{ij}(t) * (1-\rho) + \Delta\tau_{ij}(t) \tag{17}$$

$$\Delta\tau_{ij} = \sum_{k=1}^{m} \Delta\tau_{ij}^{k}(t) \tag{18}$$

Among them, p represents the evaporation value of "pheromone", and $p \in [0\sim1]$, then $(1-p)$ represents the constant value of "pheromone". The concentration of "pheromones" adjusts the balance of pheromone concentrations over time.

4. New energy utilization results

The utilization of new energy is a multi-dimensional concept, involving many aspects. In order to better research the utilization of new energy in the context of environmental design and realization, this paper adopts the performance evaluation index system of new energy development and utilization in four dimensions. It comprehensively evaluates the current performance of new energy development and utilization, and studies the factors affecting the utilization of new energy. Among them, the development and utilization evaluation system of four dimensions includes new energy performance indicators, new energy development technical indicators, economic benefit indicators and environmental performance indicators. At the same time, for the purpose of clear information, this work takes solar energy, biomass energy, wind energy, geothermal energy and water energy as examples to discuss the utilization of new energy.

(1) New energy performance indicators

New energy performance evaluation is an evaluation of the performance utilization of new energy and the effectiveness of the new energy management system. The effectiveness of new energy utilization can be demonstrated by improvements in energy performance and other expected outcomes. Renewable energy performance improvement can be demonstrated by an improvement in the new energy performance parameter value relative to the corresponding new energy baseline over a period of time. Because the primary purpose of using and developing new energy is to obtain energy, this paper firstly studies the energy performance of new energy before researching and evaluating the development and utilization of new energy. The specific research content is shown in Fig. 6.

It can be seen from Fig. 6 that the resources and availability of new energy are both above 80%, indicating that new energy has development and utilization value, and the exploitation and utilization of new energy can be increased to realize its development value. Compared with non-renewable resources, the regeneration capacity of new energy is very good, up to 81.3%, indicating that new energy can be recycled and can cause less energy waste. In terms of power generation, new energy can be converted into more than 70% of the power generation, the conversion efficiency is high, and new energy can maintain efficient supply, providing people with stable electricity. However, the price of new energy is more than 60%, the price is relatively high, and it is not suitable for large-scale use. On the whole, the development and utilization value of new energy is relatively high, suitable for large-scale mining and utilization.

(2) New energy utilization technology performance indicators

Due to the low density of new energy, in order to efficiently utilize new energy and improve the development and utilization efficiency, it is necessary to evaluate and study its utilization by new technology. In order to further study the utilization of new energy, this paper studies the current technology of new energy utilization, and the specific data is shown in Fig. 7.

As can be seen from Fig. 7, the current utilization efficiency of new energy is about 70%–80%, and the utilization efficiency is low, indicating that new energy is consumed more in the process of utilization. In terms of processing efficiency, the processing efficiency of solar energy and biomass energy is lower than that of wind energy, geothermal energy and water energy, and it is difficult to achieve efficient supply. In terms of technological maturity, hydropower is the one with the highest technological maturity compared to the other four (Shan et al., 2019; Yin et al., 2017; Li et al., 2014). Since the development prospect of new energy utilization technology is above 75%, we should continuously increase the technical support of the other four new energy sources to improve the utilization efficiency of new energy. In addition to biomass energy, the maintainability and technical efficiency of the other four new energy sources are relatively high, but the five new energy sources have a safety of more than 81%, which can be used with confidence and improve the technical support of energy (Zhang et al., 2019; Song et al., 2017).

(3) New energy economic benefit indicators

The development and utilization of new energy requires a relatively large capital investment, and the cost of development and utilization is usually higher than that of non-renewable energy. The specific data is shown in Fig. 8.

As shown in Fig. 8, the utilization cost of new energy is mostly between 80%–83%, but the benefit is between 65%–78%, and the benefit is completely lower than the utilization cost. Therefore, it is necessary to increase technological innovation, reduce utilization costs, and improve the economic benefits of new energy. New energy has an investment benefit of about 65%, and the

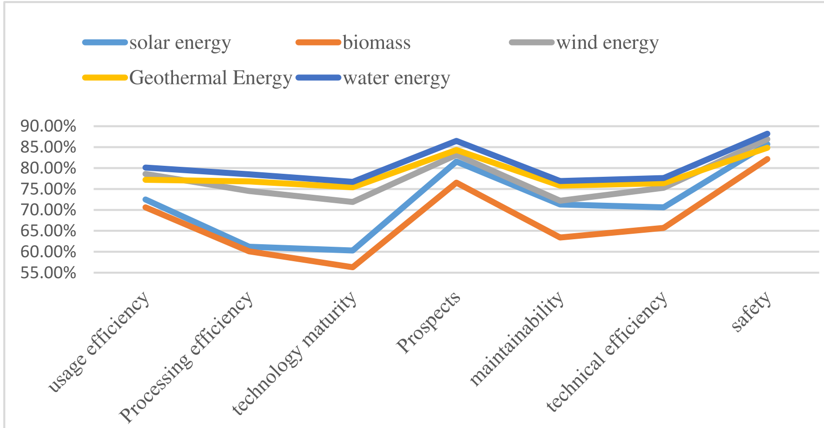

Fig. 7. Performance indicators of new energy utilization technology.

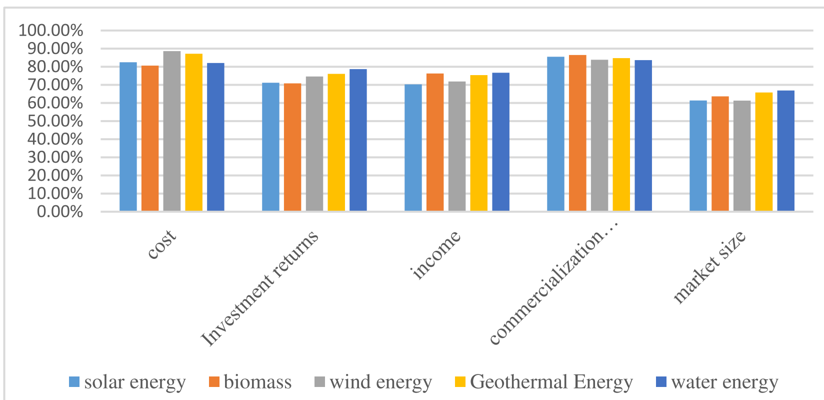

Fig. 8. New energy economic benefit indicators.

utilization of new energy should be continuously improved to expand economic income. Through data analysis, it can be seen that the commercialization potential of new energy is relatively high, and the scale of new energy utilization can be expanded, the new energy industry can be developed, and the market demand can be met. At the same time, the market size of new energy is about 60%, which can continuously expand the market size, expand the scope of new energy utilization, and increase market demand.

(4) New energy environmental indicators

The biggest feature of new energy that distinguishes it from non-renewable energy is low pollution and low emissions. However, new energy is not completely clean and pollution-free, and there will be some energy consumption. In order to realize environmental design, this paper analyzes the development and use of new energy from the perspective of environment. The specific data is shown in Fig. 9.

It can be seen from Fig. 9 that the water consumption and land occupation of wind energy are higher than those of the other four new energy sources, at about 8.5% and 6.2%. In terms of harmful gas emissions, the level of harmful gas emissions from hydropower is relatively high, around 6.15%. In the process of utilization of biomass energy, a series of technologies such as distillation are required to be finally converted into heat or electricity, and some waste water will be generated during this conversion process. In terms of exhaust emission, the emission of water energy is relatively high, because water energy needs a generator to convert water energy into electric energy, which generates a lot of waste. If the conversion efficiency is low, solar energy and biomass energy will generate more solid waste during the conversion process. New energy will cause resource consumption to a certain extent, but compared with non-renewable energy, resource consumption is relatively small.

(5) Comparative analysis of new energy and non-renewable resources

Only from energy efficiency indicators, new energy development technical indicators, program opportunity indicators and environmental indicators, it is impossible to see the utilization value of new energy from many aspects. In order to conduct a deeper research on the utilization of new energy in the context of environmental design and implementation, this paper comprehensively evaluates the performance indicators of new energy and non-renewable resources, and conducts a comparative analysis. The specific data is shown in Fig. 10.

As can be seen from Fig. 10, the amount of resources available for new energy is more than that of non-renewable resources, basically about 10% more, and new energy can be reused, while non-renewable resources can only be used once. Although the available resources of new energy are large, the utilization price of new energy is higher than that of non-renewable resources. The reason may be that the price of new energy is too high due to the backward technology of new energy. Since non-renewable resources can be used directly, new energy can only be used through multiple processes. The utilization rate of non-renewable resources is higher than that of new energy, and the utilization cost of new energy is higher than that of non-renewable resources. From the perspective of market size, non-renewable resources are larger than new energy because non-renewable resources are the earliest resources to be used and have a firm foothold in the market. In terms of harmful gas emissions and

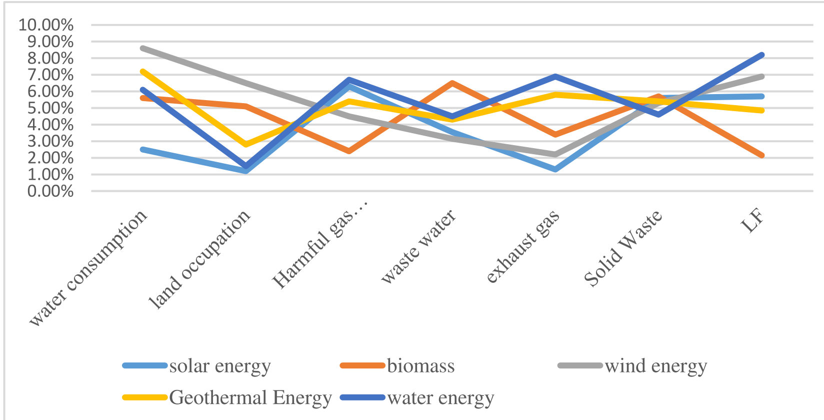

Fig. 9. New energy environmental indicators.

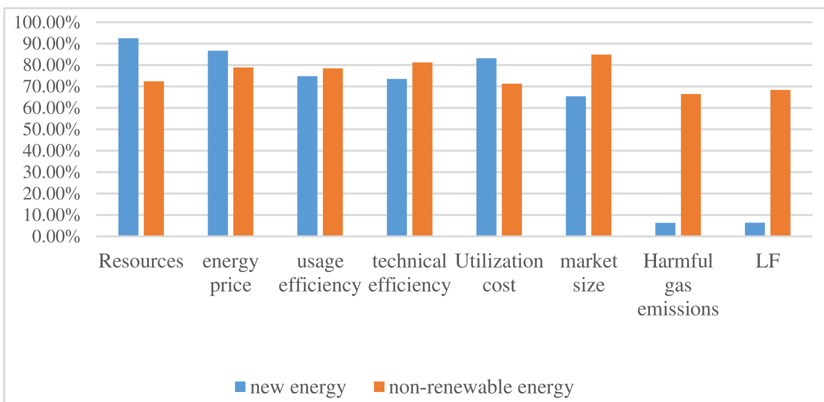

Fig. 10. Comparative analysis of new energy and non-renewable resources.

resource consumption, non-renewable resources are far higher than the utilization of new energy. Through data analysis, it can be seen that the utilization and use value of new energy is relatively high, and the utilization and use of new energy should be vigorously promoted to expand the market scale.

5. Discussion

At present, the consumption of non-renewable resources is huge, and the waste emissions are also huge. Local governments are working hard to solve the problems of high energy security and high carbon emissions. At the same time, the environmental pollution caused by the extensive use of non-renewable resources such as fossil fuels is becoming more and more important. New energy is the best alternative energy for the future energy system, and it is also a good solution for energy saving, environmental pollution and climate change. Therefore, this paper studies the utilization of new energy based on environmental design and implementation.

(1) Passing new energy performance indicators is an evaluation of the performance utilization of new energy and the effectiveness of the new energy management system. The experimental results show that the resources and availability of new energy are very large and have great development and utilization value. It can increase the exploitation and utilization of new energy and realize its development value. Compared with non-renewable resources, the regeneration ability of new energy is very good, and it will not cause energy waste. New energy can maintain the efficient supply of electricity and provide people with stable electricity. However, the utilization price of new energy is relatively high, and it is not suitable for large-scale use.

(2) Effectively evaluate new energy utilization technology through new energy utilization technology performance indicators. The utilization technology of new energy is the key to the utilization of new energy. At present, the utilization efficiency of new energy is relatively low, and the amount of loss is relatively large. In terms of processing technology, the processing efficiency and technological maturity of new energy are low, and it is difficult to achieve efficient supply. Therefore, it is necessary to continuously increase technological innovation of new energy. However, the safety of new energy is relatively high, and new energy can be used with confidence.

(3) The economic evaluation of new energy is carried out through the new energy economic benefit index. The utilization cost of new energy is completely higher than the utilization cost, and technological innovation should be continuously increased, the utilization cost should be reduced, and the economic benefit of new energy should be improved. At the same time, new energy should continuously improve the utilization of new energy and expand economic income. In order to make better use of new energy, we should continue to expand the scale of new energy utilization, develop new energy industry, and meet market demand.

(4) Evaluate the development and utilization performance of new energy through new energy environmental indicators. Specific data show that new energy will cause some waste

and solid waste generation. However, compared with non-renewable energy, the consumption of resources is relatively small, and the pollution to the environment is relatively small.

(5) Through the comparative analysis of new energy and non-renewable resources, it can be found that although the amount of available resources of new energy is large, the utilization price of new energy is higher than that of non-renewable resources. The utilization rate of non-renewable resources is higher than that of new energy, and the utilization cost of new energy is higher than that of non-renewable resources. Non-renewable resources have a firmer foothold in the new energy market. In terms of harmful gas emissions and resource consumption, non-renewable resources are far higher than the utilization of new energy. On the whole, new energy has a very large utilization advantage.

(6) The development and utilization process of new energy is multi-faceted, and it is the result of the interaction of materials, economy, technology, society, environment and other factors. Although the development and utilization of renewable energy is based on the development and implementation of a renewable energy system, from the perspective of sustainable development, the use of new energy will inevitably interact with social, technological, natural environment and other factors. In the process of utilizing new energy, attention should be paid to the influence of other factors on it.

(7) Energy saving itself is such a force, the most powerful clean energy. In order to implement the energy-saving policy, it is necessary to continuously strengthen the construction of the government's energy-saving management system, and establish and improve the energy-saving economic recovery plan. It is necessary to introduce advanced energy-saving technologies and cultivate relevant professionals to establish standards and systems for energy-intensive applications, and to create a new energy-saving system in a market economy. In addition, it is necessary to continuously update new energy utilization technologies and strive to improve energy utilization efficiency.

(8) When using new energy, it is necessary to enhance resource capacity and environmental conservation capacity, and increase opportunities for sustainable development. It should plan the construction of the ecosystem, and put the construction of a resource-saving and environment-friendly residential environment, production process and development and renewal in a prominent position. At the same time, it is necessary to start from the actual positioning and make corresponding adjustments to all new energy sources, so that each new energy source can give full play to its potential. In this way, the industrial system structure will be transformed to a higher level, and the market structure will be transformed to a low-energy consumption type, thereby promoting the optimization and improvement of the business system, improving the economic growth status, and accelerating the growth of the new energy economy.

(9) When using new energy, it is necessary to proceed from the basic national conditions, respect the laws of nature and economic laws, and learn from relevant experience in the use of new energy. With safe supply as the core, priority is given to the goals of energy saving, structural diversification and environmental friendliness, and based on institutional innovation and scientific and technological progress, to ensure the sustainable development of the new energy economy. It should deepen the reform of the energy management system, improve the national energy management system and decision-making mechanism, actively promote the reform of energy commercialization, and gradually form a pricing mechanism that can reflect resource scarcity, market supply and demand, and environmental costs. At the same time, it will develop dynamic alternative technologies to reduce dependence on oil imports and achieve self-sufficiency in new energy sources.

6. Conclusion

Energy is the premise of the continuous development of social economy. In order to make better use of new energy, this paper studies the utilization of new energy based on environmental design and implementation. In view of the current international oil prices and import conditions, it is necessary to intensify efforts to develop the liquid coal industry, and the requirement to reduce dependence on oil imports is very urgent. In the fields of clean technologies such as coal processing, efficient combustion and advanced energy production, combustion waste management and waste management, great attention should also be paid to improving efficiency in order to improve the utilization efficiency of carbon sources and play an important role in new energy sources. At the same time, we must vigorously develop new energy, promote the adaptability and cleanliness of the new energy system, take into account energy and the environment, give full play to the key role of science and technology, transform the mode of economic growth, improve the quality and efficiency of economic growth, and develop new energy and renewable energy. At present, when the resources of new energy and renewable energy are abundant, it is necessary to focus on new energy utilization technology, establish an energy system based on the development and utilization of new energy, and adjust the energy use structure. At present, hydropower, solar energy, biomass utilization and other technical aspects also have a certain foundation. It is necessary to urgently develop new energy and renewable energy to improve energy utilization capacity and reduce the use of non-renewable energy. It should make sure that it reduces environmental pollution, protect the environment, and achieves sustainable local development.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors are unable or have chosen not to specify which data has been used.

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