

Original Research Article

# The Relationship between Good Governance and Sustainable Development (Emphasizing Energy Management)

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**Abstract** | This study aims to investigate the impact of good governance on energy management. In terms of the purpose, this is an applied study that falls into the category of survey research due to the data collection time. Given the nature of the data, it is a quantitative study. The samples, selected based on the Morgan table, were 217 participants, including managers and investors of the Energy Iran Management group (IME). The tool used for data collection was a questionnaire, and the data were analyzed using SPSS and AMOS statistical software. Good governance criteria, including result-orientation, effectiveness of roles and duties, value enhancement, transparency, capacity building, and accountability, have a significant impact on energy management. The research has shown that good governance has a meaningful and positive effect on energy management in criteria such as result-orientation, value enhancement, accountability, developmental relationships, democratic relations, and social relations. Therefore, strengthening good governance and considering these criteria can be effective strategies for improving energy management in developing countries.

**Keywords** | *Governance, Good governance, Energy management.*

**Introduction** | Energy and its associated development, due to increasing demand, subsequent economic growth, fluctuations in oil prices, its environmental impacts, and its significant role in production, constitute one of the most important issues faced by governments worldwide. What is particularly significant in this regard is the reduction of energy wastage through policies based on capacity building and energy efficiency (as a win-win solution). However, effective implementation of such measures requires strong institutions capable of informing and coordinating the actions of strategic energy sector actors (consumers, producers, and public authorities at national and local levels). Therefore, to have a positive effect on sustainable development through energy management, energy governance should be coherent and integrated.

In general, as defined by the World Bank, governance refers to the manner in which a government acts to support economic and social development. “Good governance” imposes certain conditions on this management, emphasizing the strengthening of the functional capacity of public institutions to enhance

sustainable economic growth, political stability, and security, which in turn leads to improved economic outcomes and the acceleration of their transfer globally. Hence, good governance aims to achieve desired results, meaning the ability to exercise power and make effective decisions in all aspects of a country. In this context, research has reached key principles of good governance, which serve as guidelines for many governments worldwide. Nonetheless, it is impossible to determine a one-size-fits-all framework that encompasses all principles and is universally applicable, as countries differ in numerous aspects.

When governance is examined in the context of energy management, it can be said that good governance enhances environmental sustainability and energy consumption optimization, while poor governance leads to resource wastage and reduced efficiency. The necessity of adopting good governance and improving energy efficiency in production and consumption processes is felt more acutely in regions where energy resources are limited. This is particularly significant as per capita energy consumption in oil-rich countries, especially OPEC members, is high. Therefore, ensuring energy

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security in development programs, with an emphasis on sustainability and consumption management, is of great importance.

The government, as the main entity responsible for governance, is both a major influencer of energy management and, through its expenditures, impacts the energy sector either efficiently or inefficiently, depending on its performance. In other words, while government spending plays an essential role in the growth and development of a country's economy, its increase is only beneficial up to a certain threshold. Besides its direct influence on energy consumption management, the government can play a unique role by engaging social institutions in interacting with energy issues. Based on economic experiences, the government as an institution is not entirely self-sufficient, and economic development requires that the government appropriately play its governance and supportive roles, paving the way for growth and progress in all major economic sectors. Ultimately, this perspective leads to the concept of "good governance," which entails collaboration between the government, private sector, and civil society (Varahrami, 2023).

### Research Question

The main issue of this research is to investigate the impact of good governance on energy management. Accordingly, this research analyzes challenges and opportunities in various countries, especially developing ones. The primary objective of the article is to identify and analyze the factors influencing governance in the energy sector and to provide solutions to improve energy management through strengthening good governance. Therefore, the research question is:

How do good governance—based on governance indices such as result orientation, effectiveness of roles and responsibilities, value enhancement, transparency, capacity building, and accountability—affect energy management?

### Literature Review

Tatar et al. (2024) investigated "Good governance and natural resource management in oil and gas resource-rich countries: A machine learning approach". Using machine learning, this study assessed the role of good governance in managing oil and gas resources across 55 countries in 2017. Applying principal component analysis and K-clustering, the countries were classified into six clusters by governance indicators. Results revealed that only four developed countries (7% of the sample—Norway, the UK, Canada, and the US) displayed high levels of good governance.

Zheng et al. (2024) conducted a systematic review on

integrated energy management in smart grids and urban energy systems. The study provided a comprehensive review to align current and future research in smart grids and urban energy systems, aiming to unify the fragmented research on urban energy management. The findings summarized barriers and strategies to advance sustainable energy technologies for higher sustainable energy process maturity. Directions for future research included data market development, privacy-preserving data sharing, urban-scale energy modeling analytics, policy and safety standards for privacy, cybersecurity, interoperability, technology maturity assessment, and success factors in energy systems.

Concerning governance, Escribano et al. (2020) presented "The European Union and the good governance of energy resources: Practicing what it preaches?," analyzing the EU's role in enhancing energy resource management not only institutionally but also regarding the practical impacts such normative approaches have on Europe's oil and gas import patterns. The article explored whether EU imports are influenced by policies improving transparency and good governance in the extractive sector, or if such policies have been ineffective in shaping their geographical origins. The study empirically examined the relationship between resource governance in oil-exporting countries and the EU's oil and gas import patterns, contributing significantly to the literature by providing evidence from multiple EU member states rather than a single exporter-importer pair.

Mohamadian et al. (2024), in their article "Investigating the impact of good governance and economic growth on renewable and non-renewable energy consumption: Evidence from the Gas Exporting Countries Forum," used governance indicators (rule of law, corruption control, political stability, voice and accountability, regulatory quality, government effectiveness), economic growth, and consumption data for renewable and non-renewable energy (oil, gas, coal) from 1996 to 2021. Using dynamic and fully modified ordinary least squares approaches, results showed that economic growth positively affects renewable and non-renewable energy consumption. Poor regulatory quality and rule of law have negative effects on non-renewable energy consumption. Lack of corruption control increases all energy consumption types, while, except for coal, political instability negatively affects both types of energy use. Ultimately, the study shows that the influence of economic growth and governance indicators is greater for non-renewable than renewable energy consumption, recommending a focus on improving governance, corruption control, regulatory quality, political stability, and economic growth to achieve a sustainable energy resource balance.

Homayoun et al. (2024) studied “Examining the dimensions of energy governance, focusing on the oil and gas industry; A case study of Saudi Arabia”. This research employed environmental scanning alongside inductive analysis to provide comprehensive information on Saudi energy governance, including its history, key governance pillars, management of Saudi Aramco, aspects of corporate governance in Aramco, downstream product value chain development, the government’s financial relationship with leading companies, and other critical managerial and financial data. Key findings included the necessity of financial and management transparency, corporate governance improvements, value chain development, vertical integration, and redirecting government subsidies, with lessons suggested for improving the governance and productivity of Iran’s National Oil Company.

Vaharami (2023) examined the impact of good governance indicators on economic growth with an emphasis on the environment and energy consumption in developing countries using a dynamic panel approach (2002–2021). Results show a positive effect from carbon dioxide emissions (CO<sub>2</sub>), government effectiveness (GE), energy consumption (EC), and rule of law (RL) on economic growth. In a second estimated model, positive effects of economic growth (GDP) and energy consumption (EC) on CO<sub>2</sub> emissions, but negative effects of government effectiveness (GE) and political stability (PAV) on emissions, were found.

Loft Alaayedi et al. (2023) studied “Interaction of energy consumption intensity and good governance on economic growth (Case study: OPEC member countries) analyzing the impact of energy intensity and good governance on economic growth through a dynamic panel data method for 12 OPEC countries from 2002 to 2019. Results indicate a significant positive relationship between energy intensity, good governance, and economic growth. Gross fixed capital formation and urban population had positive effects, while inflation and unemployment had negative impacts. The interactive effect of energy intensity and good governance on growth was also positive. The study suggests that OPEC countries should pay greater attention to sound economic governance, especially in energy management and anti-corruption efforts, to avoid waste and achieve efficient energy use for development.

Najafi & Memarnejad (2023) examined “Investigating the factors affecting inflation with emphasis on good governance in oil exporting countries,” utilizing the GMM approach for 2011–2021. Results revealed that inflation lag, differences in GDP growth, and money supply growth had positive effects, while good governance had a negative effect on inflation rates.

Soleimani Morcheh Khorti & Cheraghi (2022) in “An overview of good governance in the environmental sector,” using a review and library approach, argued that although the cost of changing the current environmental governance system is high, the long-term costs of environmental degradation are much greater. Therefore, either the sustainable management of the environment must be adequately valued or the country must bear the consequences of poor management. Policymakers must recognize Iran’s sensitive environmental situation and the need for serious governance reforms to avoid greater future problems.

Regarding “Capacity Building” as a governance variable, Arab Yarmohammadi & Esmaili Khoshmardan (2020) studied building good governance capacity in developing countries. He stated that capacity building demands a holistic focus on all potential elements that fundamentally enhance national capacity—far beyond mere training. Capacity building is not only about developing individuals but also about helping developing countries establish self-sufficient institutions and enabling environments where individuals can effectively serve their country.

Regarding “Transparency” in governance, Farzane & Rafiie (2017) examined transparency mechanisms in good governance. The article emphasized that in good governance, transparency means the openness of government information and citizens’ right to access and be informed. Transparency serves as an accountability tool, prevents corruption, and is a vital factor for progress and development. Legal and ethical frameworks for transparency can effectively prevent corruption, foster public trust in the legal system, and contribute to national growth.

## Theoretical Foundations

### • Governance

Governance is one of the most crucial concepts in management, ranging from the macro to the micro scale. Marzban et al. (2018) argue that governance generally refers to processes and partnerships at local, national, international, or corporate levels to ensure proper policy formulation and effective resource management. By creating an institutional framework for an economy, governance helps determine the social, economic, technological, environmental, and political objectives of a country or society.

Given differences among countries regarding the quality of governance, various schools of thought have emphasized the importance of good public governance in areas such as rational public expenditure, efficient allocation of public financial resources, and targeted measures to increase economic welfare

(Rahman & Alam, 2022). Support for the concept of governance implies all public government expenditures and resources, specified by the allocation of public funds at different levels, based on the “Classification of the Functions of Government.” These levels include the main categories of “general public services, defense, public order and safety, economic affairs, environmental protection, housing and community amenities, health, recreation, culture and religion, education, and social protection” (Noja et al., 2021).

One of the most appropriate indicators for optimizing consumption is the energy intensity index, itself influenced by various factors (Lahijanian & Sjeikhi, 2024). Therefore, one of the most significant factors affecting the energy intensity index, with considerable impact on consumption management and increased efficiency, is the quality of governance. High-quality governance increases the likelihood and guarantees the achievement of effective energy consumption management.

#### • Good governance

The quality of governance is among the most critical concepts in the field of management. From the early formation of societies with even minimal coherent management systems to today’s complex communities, how resources and people are managed has always been a major challenge for leaders. Thus, the quality of governance—good or bad—can ensure advancement and prosperity or result in setback and wastage of a society’s resources and human capital.

According to Vaharami (2023), since the late 1990s, the concept of good governance has been seriously emphasized, with international institutions such as the World Bank, the United Nations’ development programs, and the International Monetary Fund introducing it as a solution to development challenges. The World Bank defines good governance according to six criteria: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption.

In recent years, governance, particularly due to its crucial role in securing social welfare, has become a major topic in public sector management. Good governance, in this respect, means making decisions that promote sustainable development, including environmental protection.

The World Bank, by collecting data from various sources, established a governance database, calculating governance indicators for 177 countries. Accuracy in these concepts can facilitate comprehension of good governance. Overall, from the perspective of the database creators, governance consists of three components:

1. The process of selecting, removing, and monitoring government officials

2. The government’s capacity for effective policy formulation and implementation

3. Respect for citizens and the state for the institutions governing economic and social interactions (Lofte Alaayedi et al., 2023).

In 2023, the importance of good governance in the energy sector increased due to new national commitments toward 2050 targets. The key challenge for energy companies is that they cannot easily transform into companies with full ESG (environmental, social, and governance) credentials. Energy transition requires extensive, time-consuming planning, development, and investment. This reality is often difficult for investors and consumers, and may lead to unfair criticism of energy companies. Nevertheless, energy companies can take proactive measures in other domains to uphold their corporate social responsibility and maintain the support of governments, regulators, investors, and consumers (Tang et al., 2025).

By mitigating non-compliance risks in international corporate structures, energy companies can achieve good governance, since non-compliance may result in penalties, extra costs, and increased oversight, along with a negative public image. Consequently, companies must establish robust frameworks to adapt to global institutions, thus reducing expenses in new structures, avoiding inactive entities, and regularly monitoring legal requirements in both markets they operate and those they do not, to avoid sudden changes.

Ultimately, energy companies must adopt a preventive approach to governance, maintaining long-term competitiveness and sustainability. By demonstrating commitment to compliance and reporting obligations, companies can gain stakeholder trust and safeguard their reputation.

#### • Governance and energy management

The existing literature examines the relationship between good governance, especially economic corruption, and economic growth. Three main theories have been presented in this area (Novianto, 2024):

- First theory: Good governance positively affects economic growth and enhances performance in the energy sector. Good governance, especially in companies that aim to avoid excessive regulations, inequality, and bureaucratic inefficiency, acts as a facilitator for economic activities and better energy management. This is especially important in developing countries facing restrictive laws and regulations.

- Second theory: In contrast, this theory highlights the negative impact of corruption stemming from inefficiency and the social costs in energy management. Corruption can increase unproductive activities and deplete social and economic resources, hampering

energy consumption optimization and sustainable development. Since the 1990s, this theory has examined the channels through which increased corruption, as an aspect of governance, impedes economic growth and improved energy management (*ibid.*).

- Third theory: A more recent viewpoint that combines the previous two, suggesting that the impact of corruption on economic growth and energy management depends on the quality of governance, and this relationship is nonlinear. Where governance quality is low or public systems are inefficient, corruption may indirectly help economic growth and energy management. However, in countries with good governance, corruption has a negative impact on efficiency and sustainability in energy management (Kazemian et al., 2024).

Thus, good governance as a multi-dimensional concept assessing the method of managing affairs and resources, oversees all aspects of authority exercised by public and private institutions. Absence of good governance can disrupt optimal and maximum energy potential exploitation, much like a country's resource wealth does not automatically guarantee high economic growth.

#### • Principles of good governance

Based on the opinions of leading governance theorists, the general principles of good governance include:

- Clear definition of roles, responsibilities, and objectives: At each administrative level, roles and responsibilities must be explicitly defined, focusing on strengths, and providing the necessary tools such as logistical support and training for fulfilling these roles and achieving objectives.
- Transparency among all economic actors: To mitigate corruption and nepotism, transparency requires the dissemination of relevant information to the public, investors, and other stakeholders.
- Market supervision: Oversight must allow for a necessary level of autonomy for the private sector and consumers.
- Reliable emergency planning: Emergency plans should be effectively designed to anticipate and control "damage" in disaster situations, with clear timelines, defined standards, and regulations.
- Consistency in decision-making and operations: Actions should consistently match stated policies.
- Accountability to society and all stakeholders: Accountability is crucial for protecting stakeholder interests. Regulatory agencies, for example, should be answerable to legislators, political oversight mechanisms, the public, and other interested bodies, such as the private sector. Policies must be explained and made public.

- Engagement of all non-governmental parties: Transparency and accountability can only be fulfilled with the participation of all non-governmental entities, such as consumers and private companies, who should express their views and demands on proposed measures and decisions. Coordination among policymakers, implementers, and stakeholders is essential.

- Sustainable development: Preventing depletion of principal resources is important to avoid limitations on national development, requiring efforts to explore alternative resources (Najafi et al., 2023).

#### • Main indicators of good governance

From the review of governance literature, key indicators of good governance include:

##### • Result-orientation in governance

Good governance involves mechanisms, processes, and institutions through which citizens, groups, and civil society pursue their interests, exercise legal rights, and fulfill obligations. Bahraini et al. (2021) argue that in energy management, result-orientation means focusing on achieving positive and sustainable outcomes. In contrast, bad governance is characterized by neglecting outcomes and failing to continuously evaluate, leading to resource wastage and inefficiency.

##### - Effectiveness of roles and responsibilities

Good governance entails the proper assignment of responsibilities and authorities to various institutions, allowing each entity to manage energy effectively and improve coordination among them. Clear role definitions can prevent policy overlap and conflict, while in bad governance, unclear roles and duties cause confusion and inefficiency in implementing energy management programs (Mansour Lakurj et al., 2024).

##### - Value promotion in good governance

Marzban et al. (2018) believe that promoting values in good governance fosters a culture of sustainable consumption and social responsibility, including community education and awareness regarding the importance of energy management and environmental protection. Good governance can reinforce positive behaviors around optimal energy use and renewable resources; poor governance, on the other hand, may weaken these values and overlook the importance of energy management.

##### - Accountability in good governance

Accountability allows institutions and decision-makers to evaluate and, if necessary, reform their performance in energy management. Good governance, through creating accountability mechanisms, builds public trust and encourages citizen participation in decision-making, while a lack of accountability can lead to corruption, abuse of power, and inefficiency in energy management (Tabatabaei, 2010).

### The Impact of Good Governance on Energy Consumption

In addition to government size, good governance is considered one of the key factors influencing energy consumption intensity. In 2003, the International Energy Agency identified governance as a vital issue for energy efficiency policies and programs. Lofte Alaayedi et al. (2023) clearly contend that good governance significantly affects all economic sectors of a country, including the energy sector. Moreover, the absence of proper governance regulations leads to weak accountability and a lack of responsibility, which can threaten the financial stability of projects and jeopardize their energy security.

Vaharami (2023) introduced good governance as an essential tool for sustainable development, emphasizing its role in enhancing the ability of developing countries to attract foreign direct investment and facilitate broader economic development. Good governance is fundamentally based on participation, requiring all governmental and non-governmental institutions, manufacturing enterprises, and even households to be committed to the proper use and protection of energy resources.

Furthermore, good governance emphasizes the concept of transparency; the performance of government and related institutions must uphold the necessary transparency in the policies adopted for the energy sector and in the realization of ultimate goals. Empowering structures, in terms of delegation of authority, consensus building, and creating the groundwork for implementing formulated policies in the energy sector, include

three main subcomponents: laws and regulations, operational programs, and budgeting. The arrangement and organization of institutions constitute the core of governance in the energy sector, encompassing executive agents, resource provision, the role of energy producers, stakeholder commitments, international services, and interactions between private and public sectors. The coordination process—which includes the subcomponents of governmental coordination, goal-setting, and evaluation—assesses the quality and impact of outcomes in energy sector policies (Fig. 1).

With the increasing energy needs of today’s societies—especially in developing countries such as Iran—and considering the limited resources of fossil fuels and their negative environmental impacts, discovering and utilizing new energy sources has become even more crucial. New and renewable energies, as unlimited, free, environmentally friendly, and accessible sources, can serve as a suitable complement to fossil fuels. Examining the current state of energy in Iran shows that more than 80 percent of the country’s produced energy is based on fossil fuels, while the share of renewable energies (installed power plant capacity) by the end of July 2023 was only 1.2 percent (Mohamadian et al., 2024). A review of the literature on good governance reveals that this concept encompasses several indicators, some of the most important of which are briefly outlined below. These indicators are extracted from the theories of various scholars:

• **Results orientation in good governance**

Good governance refers to the mechanisms, processes, and institutions through which citizens, groups, and

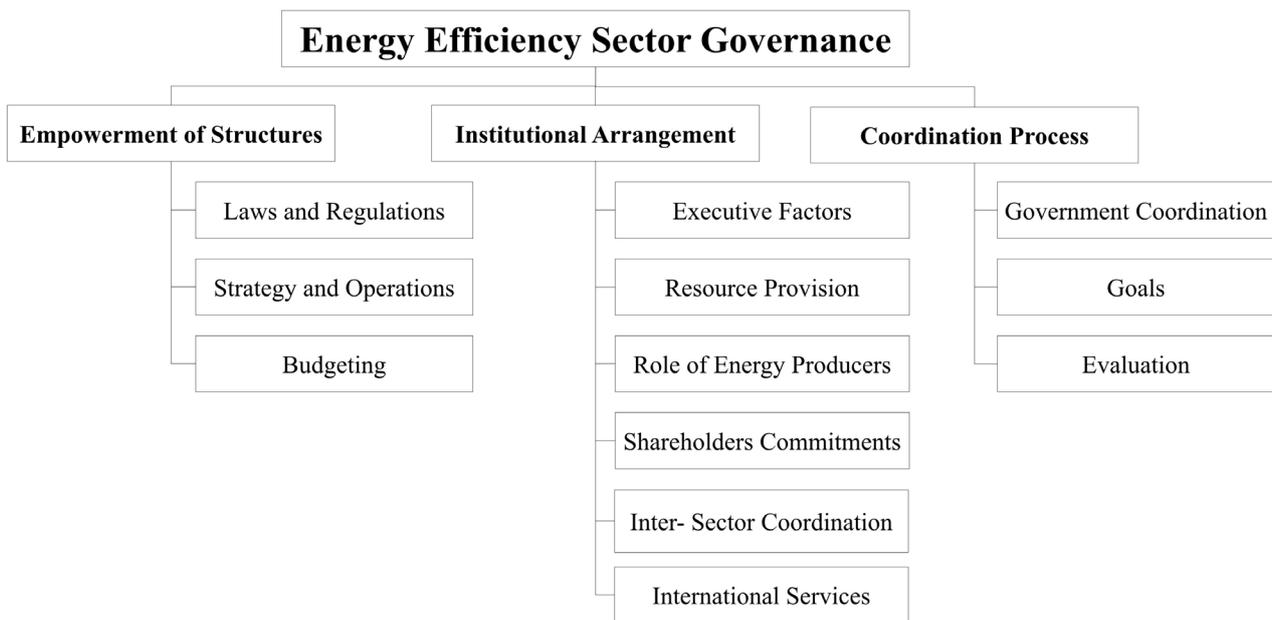


Fig. 1. Governance in the Energy Efficiency Sector. Source: Shahbazi et al., 2016, 30.

civil organizations pursue their civic interests, exercise their legal rights, and fulfill their obligations. According to Bahraini et al. (2021), results orientation in good governance means focusing on achieving positive and sustainable outcomes in energy management. In contrast, poor governance, characterized by a lack of attention to results and ongoing assessment, can lead to resource waste and inefficiency in energy management.

- **Effectiveness of roles and responsibilities in good governance**

This refers to the proper allocation of responsibilities and authority to different institutions. Effective governance ensures that each organization efficiently carries out its respective tasks in energy management, improving coordination among different institutions. Good governance, by defining clear roles and responsibilities, helps prevent overlaps and conflicts in energy policies. Conversely, poor governance, with unclear roles and responsibilities, can lead to confusion and inefficiency in implementing energy management programs (Mansoor Lakoraj et al., 2022).

- **Values promotion in good governance**

According to Marzban et al. (2018), value promotion in good governance aids in fostering a culture of sustainable consumption and social responsibility. This process includes educating and raising public awareness about the importance of energy management and environmental protection. Good governance can strengthen positive behaviors in society by promoting values related to efficient energy use and the utilization of renewable resources, while poor governance may undermine these values and overlook the importance of energy management.

- **Accountability in good governance**

Accountability enables organizations and decision-makers to evaluate their performance in energy management and make required reforms when necessary. Good governance, through creating accountability mechanisms, can increase public trust and citizen participation in decision-making processes. On the contrary, lack of accountability can result in corruption, abuse of power, and inefficiency in energy management (Tabatabaei, 2010).

## Research Methodology

This study aims to investigate the impact of good governance on urban management and energy. In terms of the purpose, this is an applied study that falls into the category of survey research due to the data collection time. Given the nature of the data, it is a quantitative study. The statistical population consisted of managers and investors of the Energy Iran Management group (IME), with a sample size of 217 individuals. The data collection tool was a questionnaire. Literature review, theoretical foundations, and previous studies were collected using library research from books and journals, while the field data were gathered through the distribution of a standardized questionnaire. The OPM and CIPFA (2004)'s standardized good governance assessment questionnaire was adopted in the study, and content validity was evaluated to ensure its accuracy. For content validity, the questions and variables were validated by experts and academic professors. One limitation of this research is the lack of comprehensive and reliable data on governance indicators in different countries, which may affect comparative analyses. Additionally, the complexity of interactions among these variables and their impacts on energy management may lead to an incomplete understanding of cause-and-effect relationships.

The reliability of the questionnaire was confirmed using Cronbach's alpha for the following variables: results orientation (0.73), effectiveness of roles and responsibilities (0.77), values promotion (0.71), transparency (0.74), and capacity building (0.70). Data analysis was conducted using SPSS and AMOS statistical software.

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## Questionnaire Scoring

Scoring was carried out according to the Likert scale as Table 1. In this study, the measurement of good governance refers to the score that employees assign to the 36-item Good Governance Assessment Questionnaire.

## Research Findings

This study highlights the impact of both good and poor governance on energy management, challenging the roles of result-orientation, effectiveness of roles and responsibilities, and values promotion in energy management. The findings indicate that effective and transparent governance can contribute substantially to enhancing energy management processes. Moreover,

Table 1. Scoring according to the Likert scale. Source: Author.

Option	Very low	Low	Moderate	High	Very High
Score	1	2	3	4	5

the effectiveness of roles and responsibilities within organizations supports the provision of sustainable and efficient energy, while promoting organizational values and culture can create positive incentives among stakeholders and employees to participate in optimal energy management.

Ultimately, this study underscores the necessity of a comprehensive and integrated approach to energy management—one which, from political, social, and economic perspectives, contributes to improving quality of life and protecting the environment.

• **Reliability (trustworthiness or consistency)**

Reliability means the extent to which an instrument yields consistent results under the same conditions. In the study by Mousavi Shafaei et al. (2021), both positive and negative correlations were observed among the subscales of the Good Governance Assessment Questionnaire, indicating desirable convergent and divergent validity. Instrument reliability was calculated using Cronbach's alpha: a coefficient ranging from zero (no reliability) to a positive one (complete reliability); the closer the result is to +1, the greater the reliability. In this study, if scores obtained from the questionnaire range from 36 to 108, the level of good governance is considered weak; from 108 to 170 is moderate; and scores above 170 are categorized as very good in this population.

**Conclusion**

Based on the results, it can be stated that governance criteria such as result-orientation, role and responsibility effectiveness, values promotion, transparency, capacity building, and accountability affect energy management. The findings highlight the importance of governance in influencing risk-taking tendencies, investor awareness of behavioral biases, and ultimately investment portfolio performance. Governance criteria—especially result-orientation and transparency, known as key factors in facilitating decision-making processes and increasing public trust—alongside capacity building and accountability, have significant impacts on energy management and sustainable development.

Moreover, the promotion of social and cultural values related to energy consumption and its optimization can lead to increased public participation and responsibility in energy management. This approach not only helps improve the current state of energy management but also paves the way for sustainable development, conservation of natural resources for future generations, optimization, enhanced efficiency, and reduced energy loss. In contrast, poor governance—characterized by weaknesses in these criteria—can result in inefficiency in energy management and increased environmental problems.

**Policy Recommendations**

For improving energy management with an emphasis on the impact of good and poor governance, the following are recommended:

- Establishing transparent, publicly accessible information systems regarding energy consumption, along with supervisory mechanisms and performance evaluations for both governmental and private agencies involved in energy resources and policies. This enhances public awareness, accountability, institutional responsibility, and citizen participation in energy management.
- Organizing training courses and specialized workshops for government employees and energy-related institutions to improve technical skills and knowledge on energy management and optimization, and promoting a culture of energy saving through educational and awareness campaigns, especially in schools and universities.
- Designing and implementing comprehensive and integrated policies based on tangible and measurable results, setting specific goals for reducing energy consumption, preventing sectoral overlap and inefficiency, ensuring institutional coordination, and ultimately improving productivity.
- Creating financial incentives and facilities for the private sector to invest in renewable energy projects and new technologies, enhancing efficiency and reducing dependence on fossil fuels.

To achieve effective governance in energy management, it is recommended to:

- Learn from both developed and developing countries by analyzing their successes and failures to build more robust energy infrastructure.
- Organize dialogue sessions and interactive workshops among the government, private sector, consumers, and other stakeholders.
- Establish communication channels and online/offline platforms for sharing expectations, opinions, demands, and criticisms with the government, enhancing awareness of public needs.

Ultimately, implementing the above strategies and approaches can help achieve good governance, thereby strengthening the country's resilience and energy management. This will enable the country to respond swiftly to changes and effectively handle crises.

For other researchers, it is suggested to deeply investigate the relationship between governance criteria and management outcomes in the energy sector. Such research could include comparative studies across countries with different governance standards to identify successful and failing energy management models. In addition, attention to the role of modern technologies

and social innovations in improving governance and energy management could open new avenues for future research.

## Declaration of No Conflict of Interest

The author declares that he has no conflict of interest in conducting this research.

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