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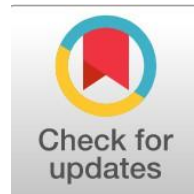
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The Role of Accounting in Supporting the Transition Toward Renewable Energy

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Abstract

General Background: Global climate change necessitates a rapid transition from fossil fuels to renewable energy. **Specific Background:** While global energy sectors shift toward sustainability, developing nations like Iraq face unique challenges due to their heavy oil dependency and lack of integrated sustainability infrastructure. **Knowledge Gap:** Iraq's significant renewable potential is hindered by an underdeveloped understanding of how accounting frameworks can bridge financial reporting and environmental sustainability. **Aims:** This research examines the critical role of accounting in facilitating Iraq's transition toward renewable energy by identifying systemic obstacles and institutional opportunities. **Results:** The study demonstrates that sustainability accounting, carbon reporting, and life-cycle costing improve transparency, optimize capital allocation, and mitigate investment risks. **Novelty:** This research provides a specialized framework detailing how modern accounting instruments previously underutilized in rentier economies can serve as strategic enablers for energy diversification in Iraq. **Implications:** Adopting standardized environmental accounting practices can improve institutional capacity, foster investor trust, and establish the financial ecosystem necessary for achieving long-term renewable energy objectives and economic stability.

Highlights:

- Modern accounting methodologies serve as essential diagnostic tools to accurately assess the financial viability and environmental performance of renewable infrastructure projects.
- The implementation of standardized disclosure frameworks addresses institutional information gaps, thereby reducing risk perception and attracting sustainable foreign investment into the Iraqi market.
- Transitioning toward integrated reporting allows policymakers to better align energy strategies with global sustainable development goals while simultaneously reducing reliance on volatile fossil fuel revenues.

Keywords: Green Accounting, Renewable Energy, Sustainability Reporting, Iraq Energy Sector, Carbon Accounting

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1. Introduction

With the increasing awareness of climate change, environmental degradation and resource depletion, the shift towards renewable energy sources has emerged as one of the most pressing priorities for the 21st century. Global warming, sea-level rise and extreme weather are some serious impacts of the accumulation of greenhouse gases as a result of the extensive use of fossil fuels like oil, coal and natural gas. Therefore, governments, international organisations and the private sector worldwide are actively pursuing cuts in carbon emissions and seeking sustainable energy solutions. (International Energy Agency [IEA], 2025, p. 12)

Figure (1): A landscape featuring renewable energy technologies (solar panels and wind turbines) integrated into a sustainable urban environment.



To meet these challenges, many countries are turning to renewable sources of energy like solar, wind, hydroelectric and biomass. The sources are considered to be environmentally friendly due to the fact that they emit low to no greenhouse gasses and are naturally replenished. The shift to renewables is key to not only improving environmental sustainability but to ensuring long term economic stability, energy security and the attainment of sustainable development objectives as well (International Renewable Energy Agency [IRENA], 2024, p. 28).

However, even though this is happening around the world, the transition process is very different from one country to another, not to mention between developed and developing countries. In developing countries, financial constraints, lack of technological infrastructure and reliance on traditional energy sources can be greater problems. Iraq is an obvious illustration of this. Iraq is one of the largest producers of oil in the world, which results in reliance on fossil fuels, therefore facing structural and economic challenges for renewable energy alternatives (Andoya, 2021, p. 142).

Nevertheless, Iraq has high potential in renewable energy sector particularly in the field of solar energy, given its geographical location and solar radiation levels throughout the year. This potential offers a good opportunity for the country to diversify its energy portfolio, lower environmental pollution and improve energy sustainability. However, the shift towards renewable energy in Iraq is still slow, and there are several obstacles to overcome such as lack of institutional capacity, less investment, and inadequate planning and awareness about sustainability practices (Ali & Al-Saadi, 2024, p. 48).

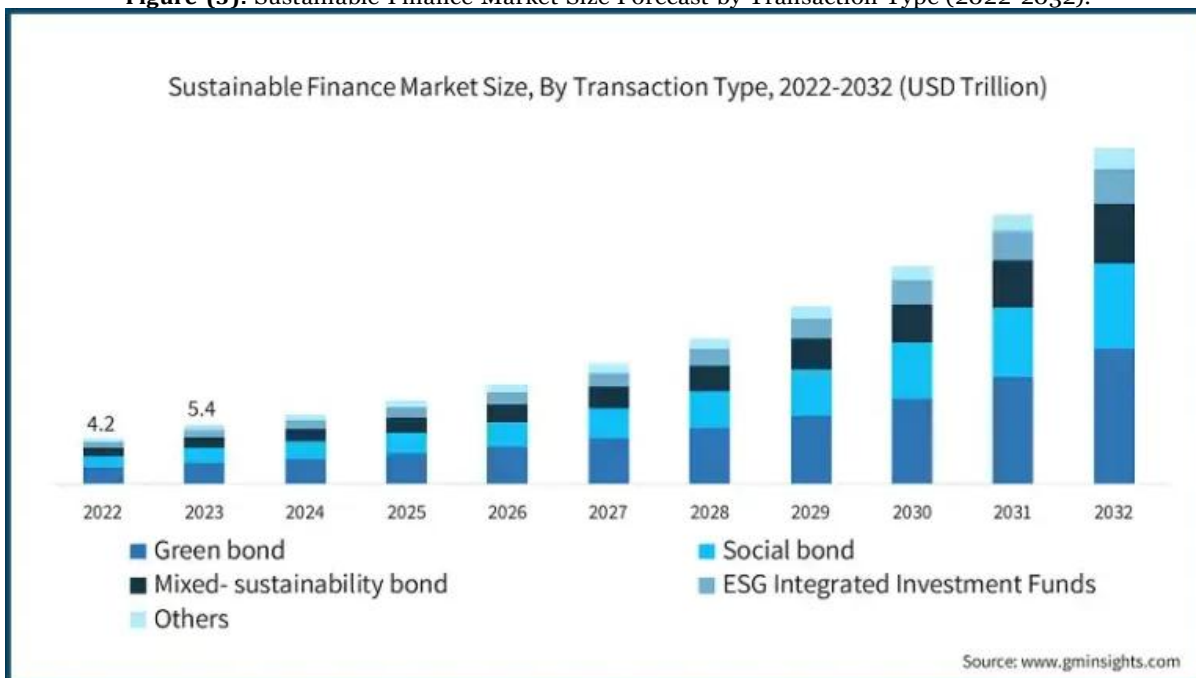
Figure (2): An aerial view of solar panel arrays installed in a desert region with high solar radiation.



In this context, accounting becomes an important instrument to help transition towards renewables. Traditionally, accounting has focused on financial reporting and economic performance. Today, however, accounting has grown to incorporate the environmental and sustainability aspects of accounting, also known as green accounting or sustainability accounting. Such measures allow companies to quantify, assess, and disclose environmental aspects, energy usage, and carbon footprint in conjunction with financial data (Schaltegger et al., 2023, p. 115).

There are several aspects of the importance of accounting for the transition to renewables. It can assist in decision making by supplying accurate and reliable data to evaluate renewable energy projects, evaluate their financial viability, and compare them with traditional energy resources. Further, accounting promotes transparency and accountability by providing sustainability reporting and disclosure of environmental performance that builds trust among investors, stakeholders, and regulators (International Financial Reporting Standards [IFRS], 2024, p. 8).

Figure (3): Sustainable Finance Market Size Forecast by Transaction Type (2022-2032).



Moreover, accounting helps to attract investment in renewables by providing more accurate financial and environmental information available to investors. Transparent and transparent reporting mitigates uncertainty and risk, which makes renewable energy projects more attractive to local and global investors. This is especially significant for countries that are dependent on foreign investment for their infrastructure and for the realisation of large-scale energy projects, such as Iraq. (Global Reporting Initiative [GRI], 2023, p. 22)

The move towards renewable energy is not just an environmental imperative, it is an economic and strategic one as well. Making this transition to a more modern way of accounting, incorporating financial and environmental factors, is a challenge for Iraq. Iraq can further improve its accounting systems and encourage sustainability reporting to better facilitate the development of renewable energy and contribute to a more sustainable and resilient energy future (Al-Quraishi & Hussain, 2024, p. 102).

2. Research Problem

Although Iraq is a country with high renewable energy potential, the transition is still limited. Effective accounting systems, connecting environmental and financial information and enabling sustainable decision-making, are one of the major challenges.

The purposes of this study are to:

This study aims to:

1. Review the importance of accounting in the transition to renewables.
2. Identify the main challenges facing Iraq
3. Emphasize ways that accounting practices can be enhanced
4. Make suggestions to promote sustainability

3. Methodology

This research is descriptive analytical that used previous studies, reports and academic literature related to accounting and renewable energy.

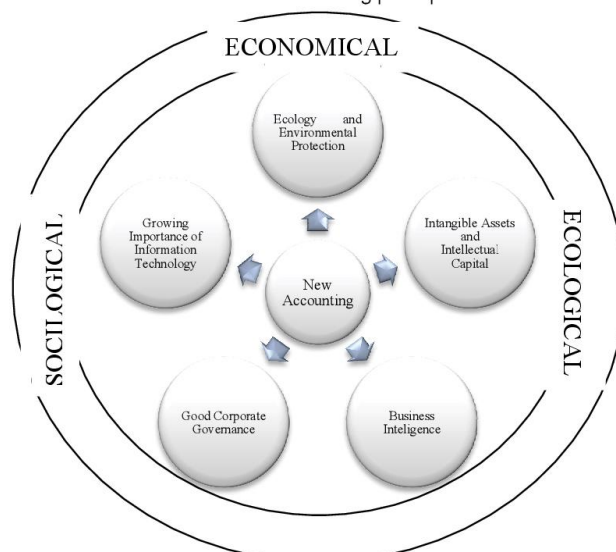
4 . Theoretical Framework

4 .1 Green Accounting

Green accounting or also known as Environmental Accounting is a contemporary advancement in the accounting field which tries to include the environment in conventional accounting frameworks. Green accounting differs from traditional accounting in that it considers not just the economic costs and benefits but the environmental costs, benefits and impacts linked to the activities of the organization (De Beer & Friend, 2021, p. 14).

Green accounting is really a method of defining, measuring and reporting pollution control, waste management, resource depletion and energy use costs. In conventional accounting methods, these costs are not recorded, which can result in the failure to fully understand an organization's performance. Green accounting takes such environmental factors into account, making the evaluation more holistic with regard to the economic and ecological impact of business activities.(United Nations [UN], 2024, p. 55).

Figure (4): Fields and prerequisites of the new accounting system under sustainable development.



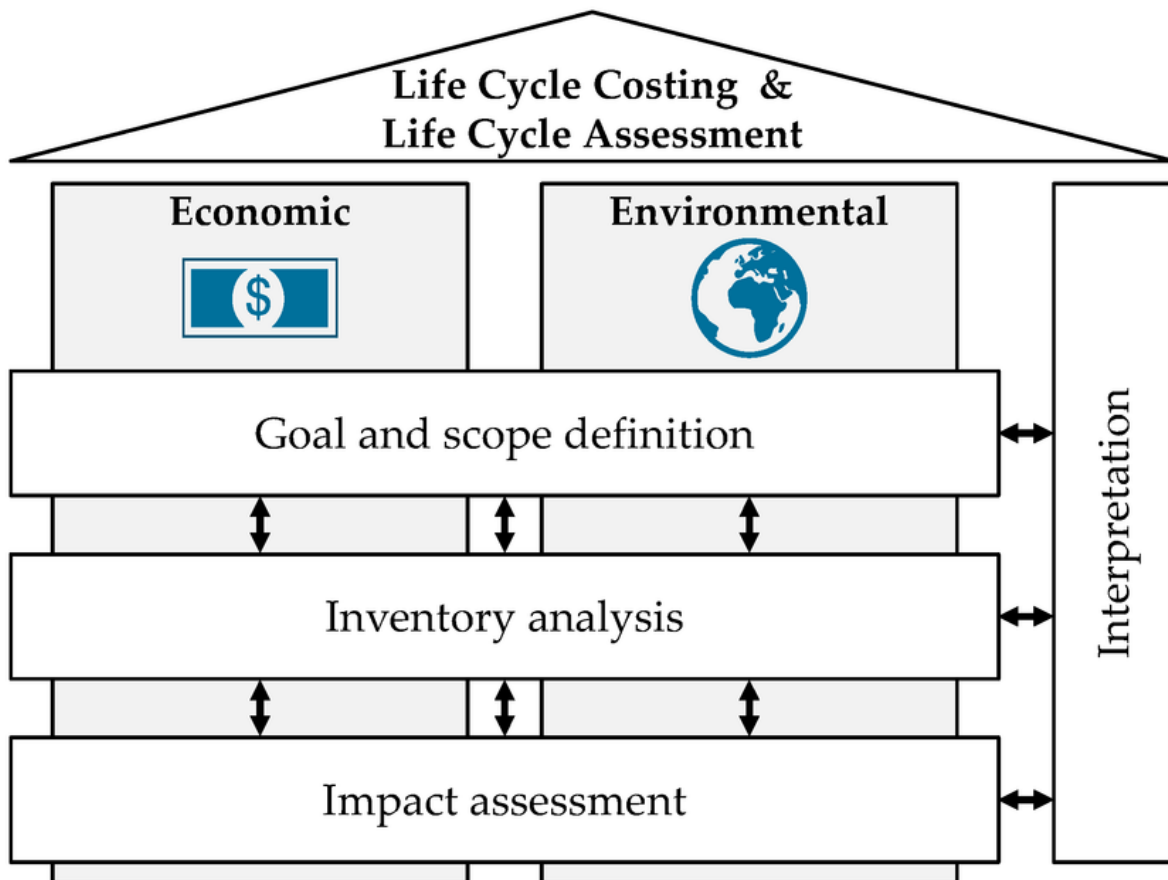
Source: Own work on the basis: Radneantu, 2010, p. 308.

One of the main goals of green accounting is to promote sustainable development by ensuring that natural resources are utilized efficiently and responsibly. It helps organisations measure the environmental consequences of their actions over the long term and promotes adoption of environmentally friendly practices. For instance, businesses can measure the impact of carbon emissions, water usage, and energy use and apply this data to enhance efficiency and minimise environmental damage (Bebbington & Unerman, 2020, p. 11).

Green accounting is also an important part of ensuring transparency and accountability. Environmental disclosure and reporting can help organizations to promote their environmental performance to stakeholders, such as investors, regulators and the public. This transparency helps build trust and encourages companies to adhere to environmental regulations and sustainability standards.(GRI, 2023, p. 18).

Additionally, green accounting helps to make better decisions by offering relevant information to consider when choosing among options. For example, companies can calculate the expenses and benefits of purchasing renewable energy resources and technologies compared to those of using fossil fuels. This kind of analysis is relevant especially in the context of the transition to energy, in which long-term environmental and economic aspects should be taken into account (Schaltegger et al., 2023, p. 204).

Figure (5): Framework for Integrating Life Cycle Assessment (LCA) and Life Cycle Costing (LCC).



In practice there are a number of tools and techniques in green accounting, including environmental cost accounting, life-cycle costing and environmental performance indicators. These tools enable organisations to monitor environmental effects across the entire life cycle of a product or service from their creation to disposal. The adoption of green accounting has several obstacles. These include inaccurate measures of environmental costs, a lack of standardized frameworks and limited awareness of environmental costs among organisations. Therefore, in developing nations like Iraq, these challenges are more salient with weak institutional setups and less technical knowledge (Al-Fatlawi et al., 2024, p. 312).

But there is also considerable potential for the use of green accounting, especially if there is a need for a transfer to renewable energy in countries. Incorporating environmental costs into financial systems will allow policy makers and organizations in Iraq to understand the real costs of energy production, and make decisions that benefit sustainability and help lessen dependence on fossil fuels. (Al-Fatlawi et al., 2024, p. 315).

To sum up, green accounting is an essential instrument to connect economic efficiency and environmental responsibility. It is an indispensable tool for the implementation of sustainable development and as a facilitator for the shift toward renewable energies, particularly in countries where the economy is mainly dependent on natural resources such as Iraq.

Figure (6): Sustainability domains and their integration with Sustainable Development Goals (SDGs).



4.2 Sustainability Accounting

Sustainability accounting is a holistic practice that goes beyond financial accounting to measure, analyze and report the environmental, social and economic performance of an organization. It has become clear that measuring financial success is not enough and that organizations' overall performance, particularly in the face of global issues like climate change, resource shortages, and social inequality, must also be considered.

Sustainability accounting can be seen as rooted in the notion of the "triple bottom line", that is, three aspects are crucial: economic, environmental, and social. It allows organizations to measure the financial results and their contribution to the environment and society. In this way, sustainability accounting gives a more comprehensive and balanced perspective of the organization's performance. (Elkington, 2024, p. 42)

Figure (7): The Triple Bottom Line of Sustainability (People, Planet, Profit) and its operational intersections.



Sharing information and increasing transparency is one of the main purposes of sustainability accounting. Disclosure of information regarding organisations' environmental, social and governance (ESG) practices is becoming a requirement. Companies use sustainability reports to report on important indicators like carbon emissions, energy usage, waste management, employee wellbeing, and community involvement. This transparency enables stakeholders, such as investors, regulators and the public to make informed decisions and to assess the organisation's sustainable development. (IFRS Foundation, p. 15, 2024).

Sustainability accounting is also significantly used to synchronise the organisation's practices with international sustainability accounting standards and frameworks. These include programmes and frameworks at a global level like Sustainable Development Goals (SDGs), Environmental, Social, and Governance (ESG) criteria, and reporting guidelines. These frameworks enable organizations to report on similar matters in a uniform manner and for their reports to be comparable between industries and between countries. (Global Reporting Initiative [GRI], 2023, p. 7)

Figure (8): Classification of UN Sustainable Development Goals according to ESG pillars.



Another vital part of sustainability accounting is that it helps to facilitate strategic decision-making. Combining environmental and social information and triangulating it with financial data enables organisations to consider long-term impact of their activities. For instance, businesses can forecast the monetary dangers of environmental restrictions, climate modification, or resource depletion, and modify their strategies as needed. This is especially important in the energy industry, where the adoption of renewable energy is necessitating a careful assessment and planning of both the costs and benefits of the transition (see Schaltegger & Burritt, 2025, p. 88).

Figure (9): Institutional Sustainability Journey Roadmap: From Ambition to Impact Reporting.



There are also applications for sustainability accounting to improve risk management and performance. It helps organizations to find inefficiencies, save resources, and optimize use of resources. For example, energy usage and emissions data can be used to identify energy-efficient technologies for use within the business and to help lower long-term operating expenses. This not only is beneficial to the environment but will also improve financial performance in the long run.

Although the practice of sustainability accounting is gaining momentum, it is still beset by a number of challenges. These are due to lack of generally accepted standards, problems with non-financial measurement, and the need for special knowledge and systems. Besides, other factors such as lack of awareness, weak regulatory frameworks and lack of institutional support pose additional problems in developing countries like Iraq. But there are also big opportunities for countries to make the move to renewable energy through sustainability accounting. It can improve the quality and transparency of information and thus attract local and foreign investments, facilitate policy development and help increase accountability. Sustainability accounting can be significant for Iraq in diversifying the sector of energy, decrease environmental impact in the country, and reach sustainable development in the long run. (Al-Sawaied & Al-Khyat, 2024, p. 210)

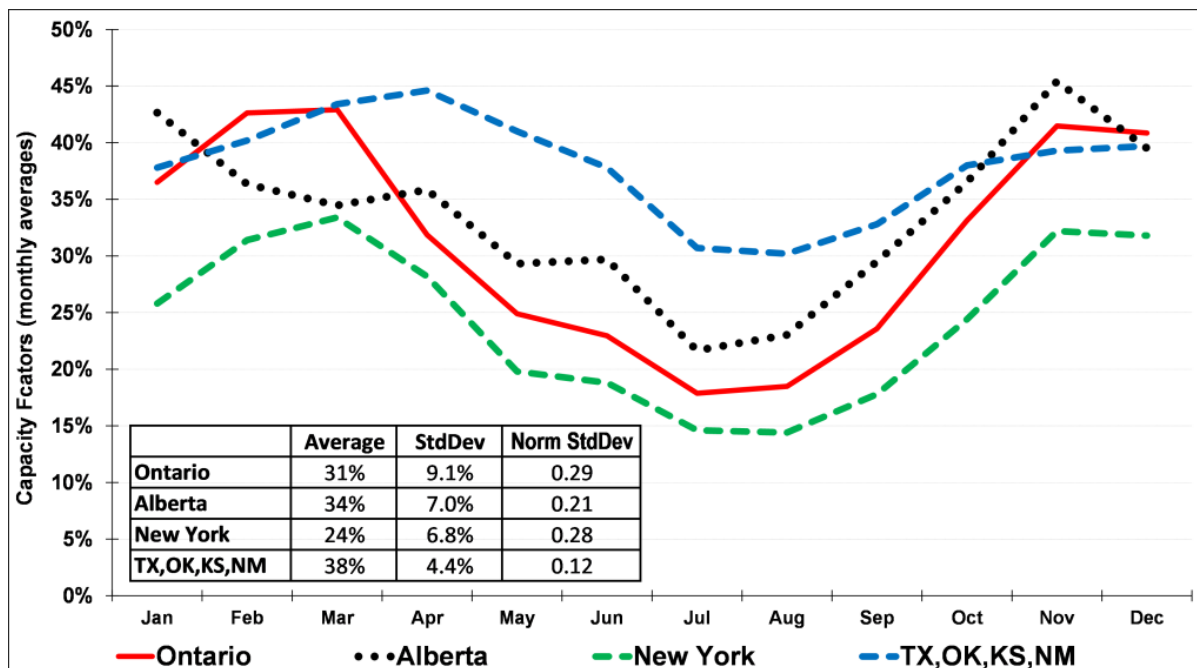
To conclude, sustainability accounting is a key instrument in the combination of the financial performance and environmental and social responsibility. Widespread adoption is essential for organizations and governments looking to tackle modern sustainability issues and facilitate the shift towards renewable energy systems.

4 .3 Accounting and Renewable Energy

Accounting is vital to the development and implementation of renewable energy projects, as it provides both financial and non-financial information. With the shift to renewable energy, many projects are in the early stages and require significant investment and planning, accounting systems play an important role in directing resources efficiently and assessing projects accurately.

The main purpose of accounting in this context is to assess the costs and benefits of the project. Renewable energy projects, especially those using solar and wind, tend to have large capital expenses, but have long-term economic and ecological advantages. These costs can be calculated using accounting tools such as cost-benefit analysis, which can be used to compare the costs over time with the expected revenues and savings. This involves cost analysis of installations, operating costs, maintenance costs, and possible investments return (IRENA, 2024, p. 45)

Figure (10): Monthly comparison of wind energy capacity factors across different regions.



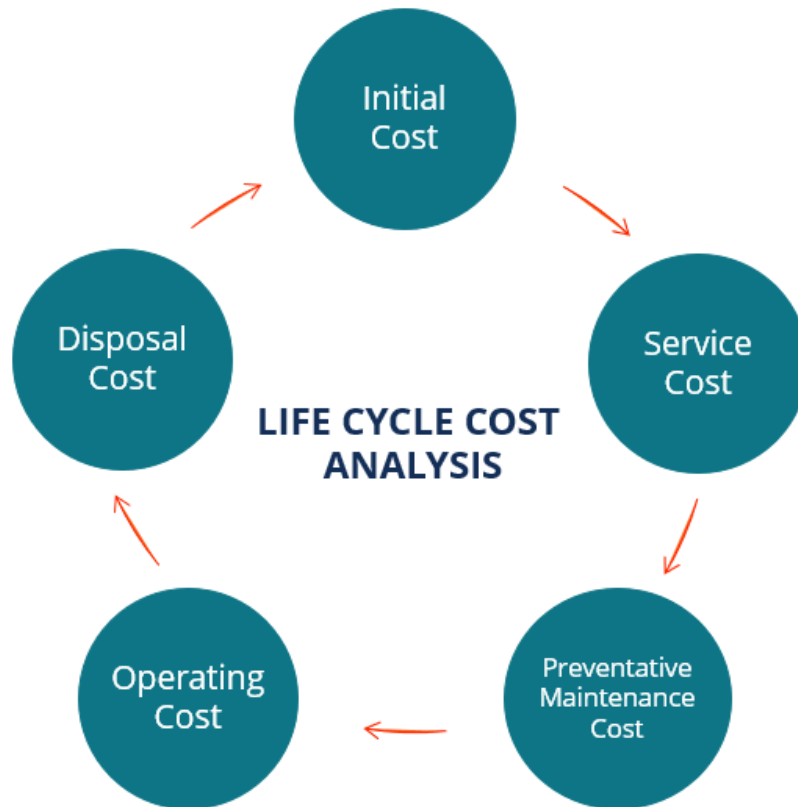
Besides its financial assessment, accounting is a crucial element for environmental impact measurement. The goal of any renewable energy project is to lower GHGs and limit environmental harm. Organizations can measure carbon emissions reductions, energy savings and environmental performance improvements through environmental and sustainability accounting. Such readings are crucial for monitoring the success of renewable energy projects and for optimizing the deployment of renewable energy resources to meet environmental targets.

In addition, the accounting provides to investors and stakeholders with reliable and transparent information to help make investment decisions. The investment in renewable energy can also be risky because of the risk of market volatility, technological advancements and regulatory changes. These uncertainties are minimized with accounting systems that provide detailed financial reports, risk assessments, and performance indicators. This transparency leads to greater investor trust and helps in securing finance for renewable energy projects, especially as they expand. (World Bank, 2024, p. 33).

Another aspect of accounting is improving financial planning. Any renewable energy project needs a longer-term strategy, which should account for future costs, revenues, and possible risks. Budgeting, forecasting and financial modelling depend on accounting to provide the information needed for effective planning, and to ensure the sustainability of investments (Bebbington & Unerman, 2020, p. 89).

Furthermore, the modern accounting methods include some sophisticated accounting instruments like life-cycle costing and performance measurement systems. It helps organisations to assess the life-cycle costs of renewable energy facilities, from upfront investments to running the systems and decommissioning at the end of their service life. This holistic strategy ensures consideration of all economic and environmental aspects. The job of accounting in renewable energy is very significant in regards to Iraq. In a fossil fuel dependent country, evaluating and implementing renewable energy projects can be supported with accounting systems, given the need for diversifying energy sources. Therefore, Iraq can achieve better financial transparency, investment, and the efficiency of the energy sector through adopting modern accounting practices (Al-Maghzom & Al-Rubaie, 2024, p. 67).

Figure (11): Circular components of Life Cycle Cost Analysis (LCCA) in energy projects.



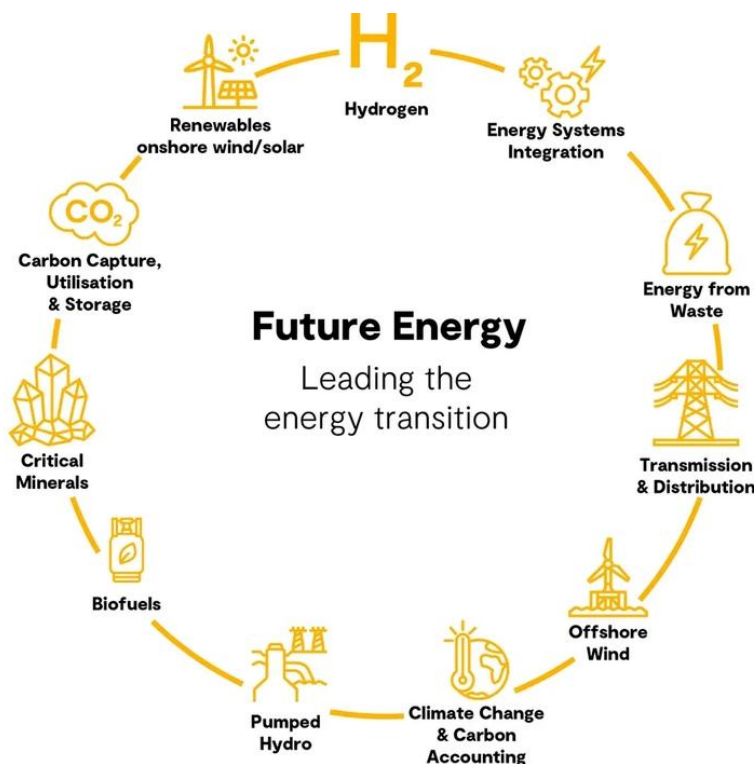
4.4 Relationship Between Accounting and Energy Transition

The relationship between accounting and energy transition is explored in this section. This section discusses the relationship between accounting and energy transition.

Accounting and energy transition are closely linked, as accounting becomes one of the important tools for linking financial and environmental aspects into decision-making processes. The shift to sustainable energy systems needs information to be accurate, reliable and comprehensive, and accounting systems are uniquely suited to this need.

It combines financial information (e.g. costs, revenues, investments) and environmental information (e.g. emissions, energy use, use of resources). The integration will allow organisations and policy makers to evaluate the complete energy footprint of their decisions. For instance, it can help decisionmakers assess the long-term costs and benefits of renewable energy compared to conventional fossil fuel energy systems (International Energy Agency [IEA], 2025, p. 34).

Figure (12): Future Energy Ecosystem and integrated energy transition components.



Enhancing decision making is one of the most crucial accounting contributions to the energy transition. Accounting provides detailed and structured information that helps stakeholders explore options available on the energy landscape, identify risks, and determine the most sustainable and cost effective options. This is especially relevant in complex systems where the economic, environmental and social aspects need to be taken into account.

Further, accounting increases transparency and accountability in the energy sector. Sustainability reporting and environmental disclosure provide organizations with the tools to report their progress towards renewable energy targets and highlight their efforts to minimise environmental footprint. This transparency helps foster trust between stakeholders and promotes adherence to environmental laws and international standards (p. 21, IFRS Foundation, 2024).

Accounting also helps a lot in the policy making and implementation. Accounting information is used by governments to design energy policies, to establish environmental objectives, and to track progress towards the sustainability objectives. The accurate accounting information facilitates evidence based policymaking and effective use of resources. There are also some obstacles to the incorporation of accounting in the energy transition. These include problems of measuring environmental impacts, lack of standardization of reporting frameworks, and limited technical expertise. In developing countries like Iraq, these difficulties are exacerbated by institutional and regulatory constraints (Al-Obaidi & Al-Nasrawi, 2024, p. 156).

Even with these limitations, energy transition integration with accounting has significant opportunities. Accounting can help facilitate the adoption of renewable energy and help to reach sustainable development by improving the quality of information and helping to make informed decisions. To sum up, accounting is key as an enabler of energy transition. It integrates financial and environmental data which makes it a core tool for helping to inform the transition to renewable energy systems and long-term sustainability, especially in countries such as Iraq, that are turning to diversifying their energy mix. (Al-Obaidi & Al-Nasrawi, 2024, p. 159)

5 . Practical Part

This section conducts a practical analysis based on previous studies that analyzed the use of accounting in supporting renewable energy and sustainability. It emphasizes the applications of accounting tools in real life situations and their significance to Iraq.

The Energy Sector: Sustainability Accounting (6.1)

Previous research suggests that the use of sustainability accounting is an important factor in the incorporation of environmental and financial performance into energy firms. It is used to monitor environmental indicators like emissions, energy use and resource consumption as well as financial ones (Schaltegger & Burritt, 2025, p. 195).

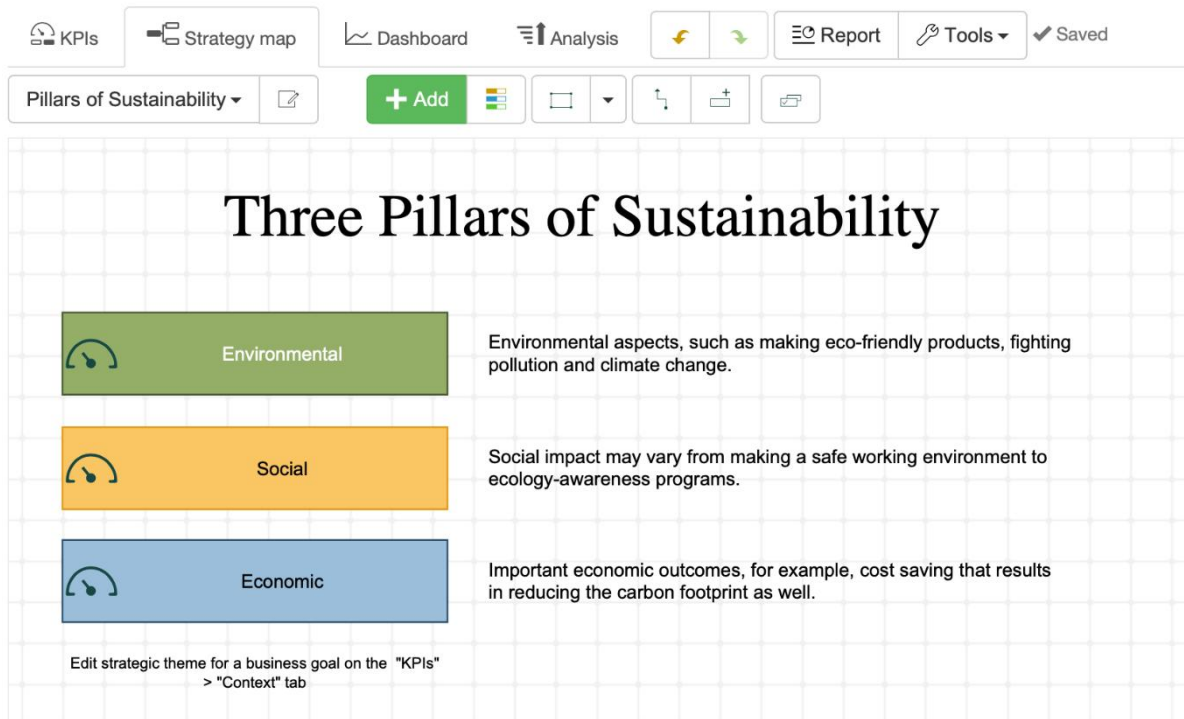
These practices increase transparency and enable long-term planning through the real-time visibility of the organisation's performance. Despite that, there are some challenges for implementing sustainability accounting, such as the absence of uniform systems and limited expertise (Al-Sawaied & Al-Khyat, 2024, p. 208).

Table (1): Role of Sustainability Accounting in the Energy Sector

Aspect	Description
Purpose	Integrate environmental and financial performance
Key Tools	Sustainability reports, ESG indicators
Benefits	Transparency, improved decision-making, and long-term planning
Challenges	Lack of standards, limited expertise
Relevance to Iraq	Supports transition from oil dependency to sustainable energy

(Source: Adapted from Schaltegger & Burritt, 2025; Al-Sawaied & Al-Khyat, 2024)

Figure (13): Three Pillars of Sustainability and the Strategic Performance Dashboard.



5.1 Accounting for Renewable Energy Projects

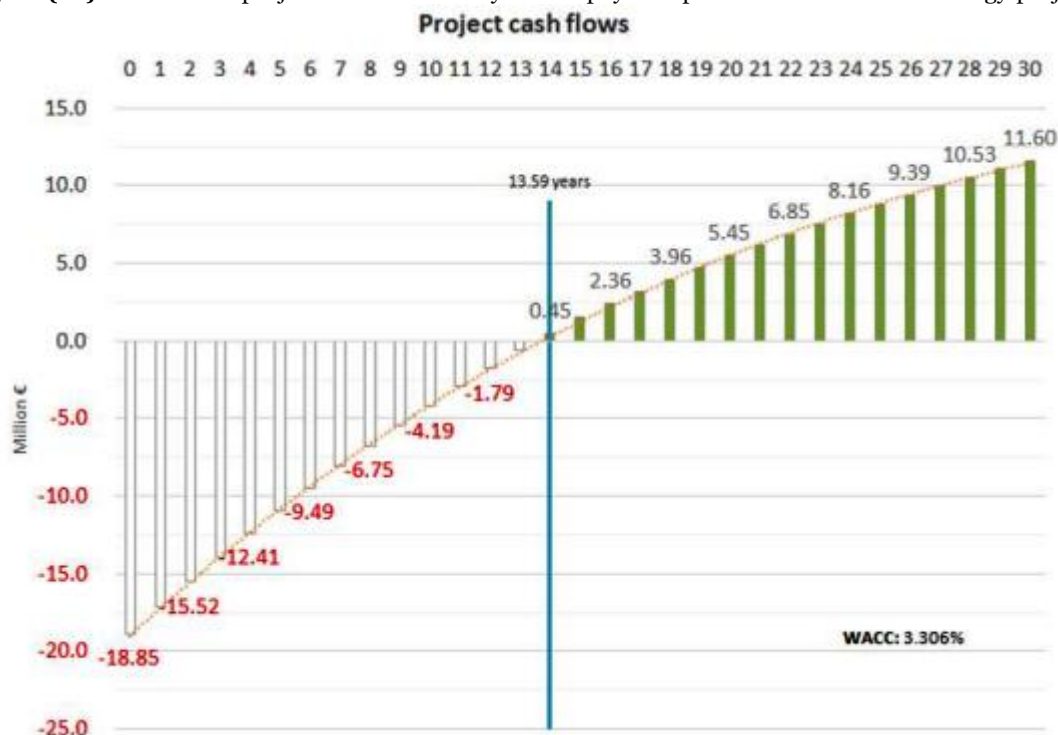
Accounting is vital when it comes to assessing renewable energy projects. According to various studies, methods such as cost-benefit analysis, Net Present Value (NPV), and Internal Rate of Return (IRR) have been extensively applied in the assessment of renewable energy projects. (International Renewable Energy Agency [IRENA], 2024, p. 58).

The application of these methods enables organizations to weigh the benefits of renewable energy projects against their initial costs. In addition, accounting increases investors' confidence through accurate financial data provision and elimination of uncertainty. (World Bank, 2024, p. 41).

Table (2): Accounting Tools in Renewable Energy Projects

Tool	Function
Cost-Benefit Analysis	Compares project costs with expected benefits
Net Present Value (NPV)	Measures profitability over time
Internal Rate of Return	Evaluates investment efficiency
Payback Period	Determines the time needed to recover the investment
Financial Reporting	Enhances transparency for investors

Figure (14): Cumulative project cash flows analysis and payback period for a renewable energy project.



5.2 Carbon Accounting

Carbon accounting is a process which is now widely considered necessary to calculate greenhouse gases' emission levels. According to previous research works, it has been revealed as a useful instrument for measuring companies' environmental efficiency and compliance with climate change regulations. (Global Reporting Initiative [GRI], 2023, p. 14) Through calculating the level of greenhouse gases emissions, companies can detect inefficiencies and introduce practices for reducing their influence on the environment. Moreover, carbon accounting is helpful in terms of addressing climate-related financial risks through risk management processes. (United Nations [UN], 2024, p. 92)

Table (3): Functions of Carbon Accounting

Function	Description
Emissions Measurement	Quantifies greenhouse gas emissions
Environmental Monitoring	Tracks environmental performance over time
Risk Management	Identifies climate-related risks
Decision Support	Helps in selecting sustainable energy options
Policy Compliance	Supports adherence to environmental regulations

Figure (15): Digital Dashboard for measuring and monitoring carbon footprint across Scope 1, 2, and 3.



5.3 Integrated Reporting

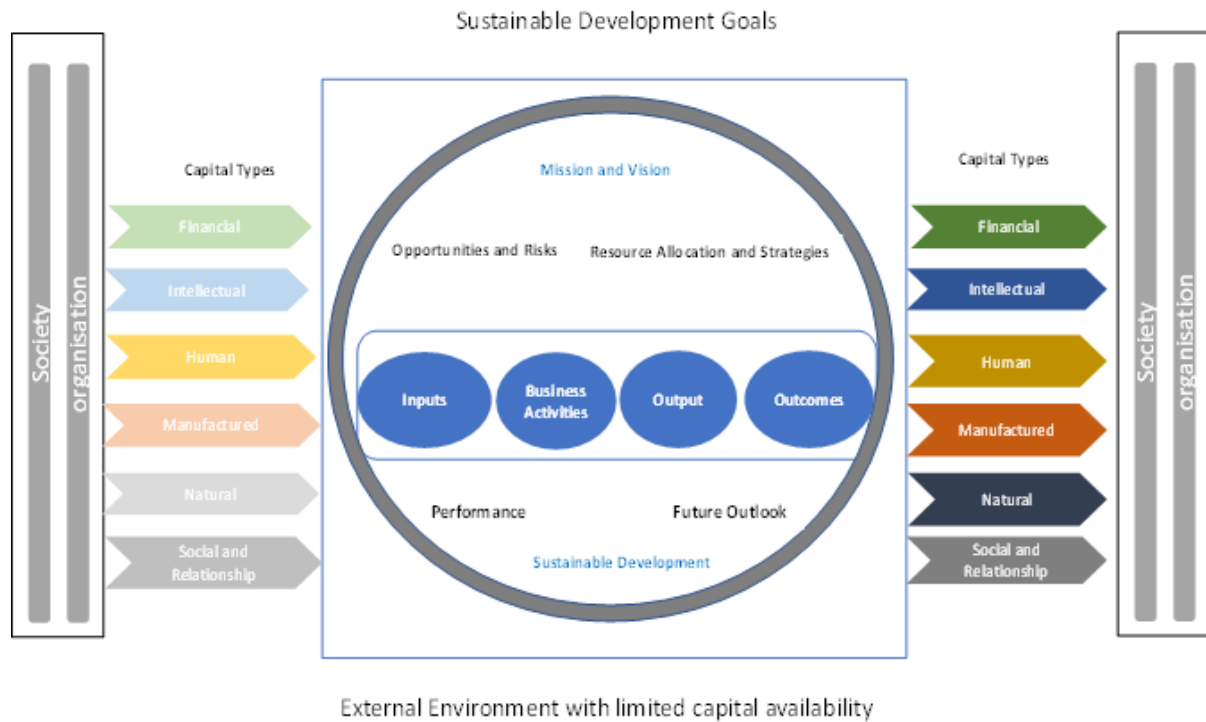
The concept of integrated reporting suggests combining both financial and non-financial information in one model. In this way, organizational performance will be measured comprehensively, improving strategic decisions. (International Financial Reporting Standards [IFRS], 2024, p. 12)

Table (4): Benefits of Integrated Reporting

Aspect	Description
Information Integration	Combines financial and environmental data
Transparency	Improves disclosure and accountability
Decision-Making	Supports long-term strategic planning
Investor Confidence	Attracts sustainable investments
Sustainability Alignment	Aligns with global reporting standards

(Source: Adapted from IFRS, 2024; GRI, 2023)

Figure (16): The Integrated Reporting (IR) framework and value creation process under sustainable development.



6 . Challenges Faced by Iraq

There exist many challenges that the country of Iraq faces while using accounting to aid renewable energy:(Al-Fatlawi et al., 2024, p. 308).

1. Reliance on oil as its main income generator
2. Inadequate environmental accounting and sustainability accounting mechanisms
3. Absence of well-defined regulations and standards
4. Limited knowledge in sustainability and environmental accounting
5. Insufficient funding in the development of renewable energy sources

Table (5): Key Challenges in Iraq

Challenge	Impact
Oil Dependency	Limits the diversification of energy sources
Weak Accounting Systems	Reduces the accuracy of environmental data
Lack of Regulations	Creates inconsistency in reporting
Limited Expertise	Slows the adoption of modern accounting practices
Financial Constraints	Hinders renewable energy investment

(Source: Adapted from Al-Fatlawi et al., 2024; Al-Sawaied & Al-Khyat, 2024)

7 . Opportunities Available to Iraq

In spite of these obstacles, there are many opportunities available to Iraq which could strengthen the influence of accounting on renewable energy:(International Renewable Energy Agency [IRENA], 2025, p. 22)

1. Incorporation of green accounting
2. Development of renewable energy, especially solar energy
3. Attracting foreign investments through transparency

4. Digitalization of accounting

Table (6): Opportunities for Iraq

Opportunity	Benefit
Green Accounting Adoption	Improves environmental performance
Renewable Energy Development	Reduces dependence on fossil fuels
International Investment	Provides financial support and expertise
Digital Transformation	Enhances data accuracy and reporting efficiency

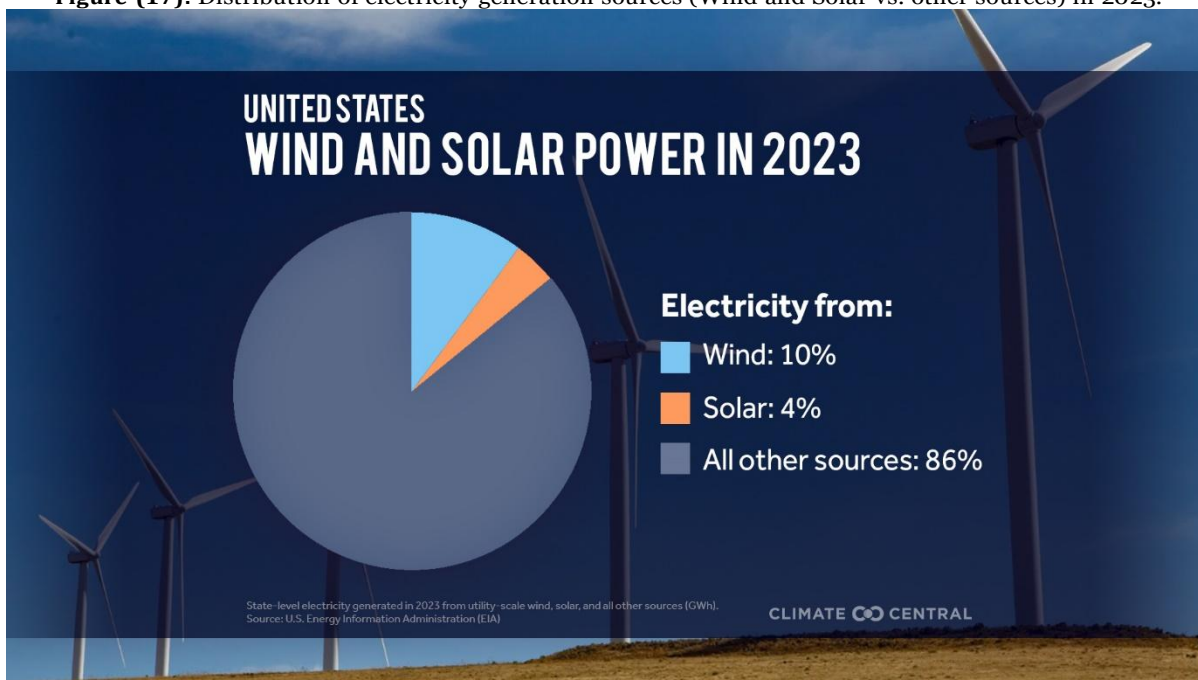
8 . Results

Several important conclusions can be formulated based on the theoretical and practical analysis of existing studies dedicated to the role of accounting in promoting the transition to renewable energy sources in developing countries like Iraq.

8 .1 Accounting Improves Decision Making in Renewable Energy

The conclusion drawn from the study is that accounting makes an important contribution to enhancing decision making related to renewable energy projects by providing information not only on their costs, revenues, and risks but also on other factors like emissions and energy consumption. (Schaltegger & Burritt, 2025, p. 115).

Figure (17): Distribution of electricity generation sources (Wind and Solar vs. other sources) in 2023.

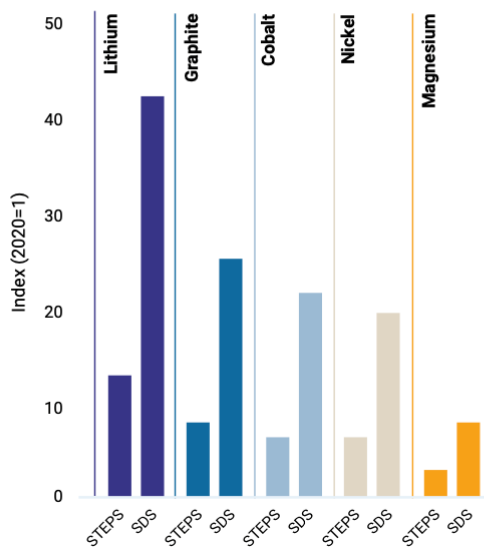


8 .2 Sustainability Accounting Promotes Transparency

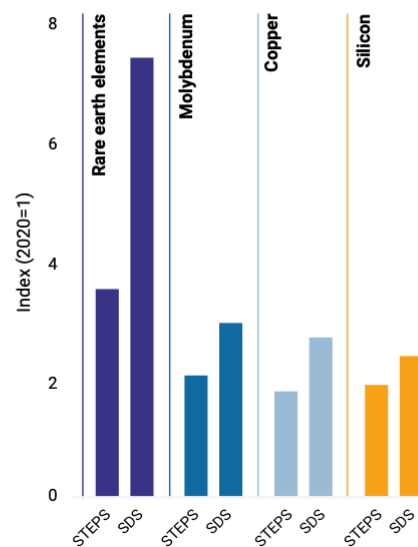
Transparency in the operation of companies engaged in energy production activities is greatly enhanced due to the adoption of sustainability accounting practices. The reason is that such a practice requires companies to disclose information about their negative impacts on environment and society. (Global Reporting Initiative [GRI], 2023, p. 28).

Figure (18): Global demand projections for critical minerals in battery technologies (2020-2040).

Demand for selected battery-related minerals in 2040 relative to 2020 levels



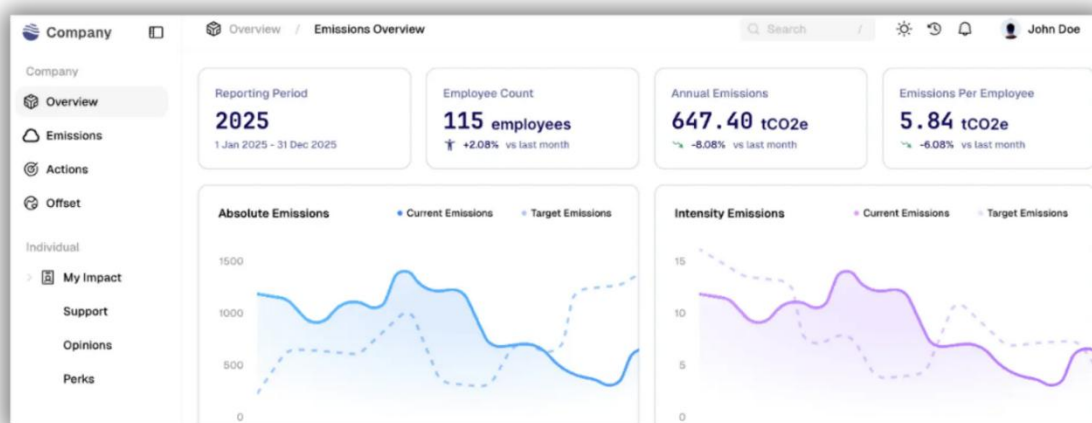
Demand for selected battery-related minerals in 2040 relative to 2020 levels



8.3 Carbon Accounting Helps in Managing Greenhouse Gases

According to the findings of the study, carbon accounting is a useful tool for assessing and managing greenhouse gases. It helps identify inefficient ways of consuming energy resources and allows the development of strategies to reduce its adverse effects on the environment. (United Nations [UN], 2024, p. 64).

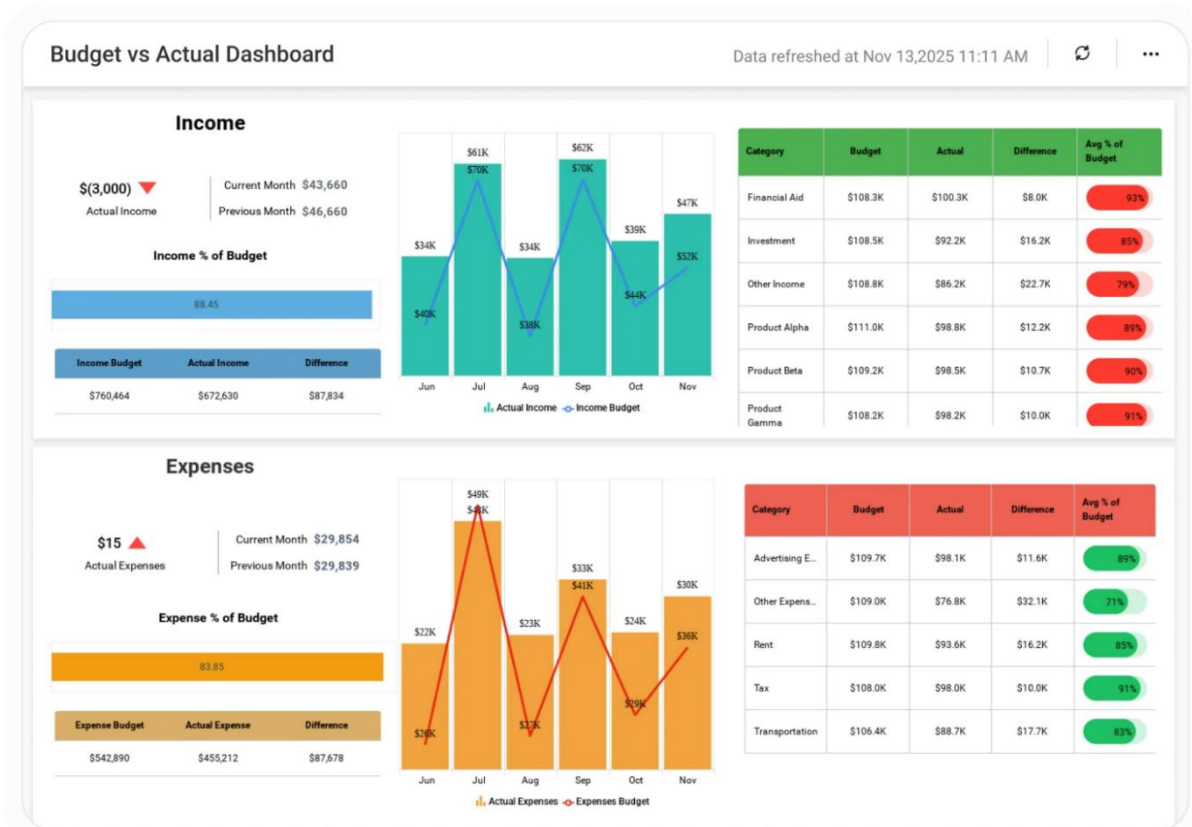
Figure (19): Business Intelligence (BI) Dashboard for monitoring and analyzing corporate carbon emissions.



8.4 Integrated Reporting Enhances Accountability

Based on the findings, it is evident that integrated reporting allows for better accountability by combining financial and environmental information. This method plays a crucial role in obtaining sustainable investments and adopting global reporting requirements. (IFRS Foundation, 2024, p. 19).

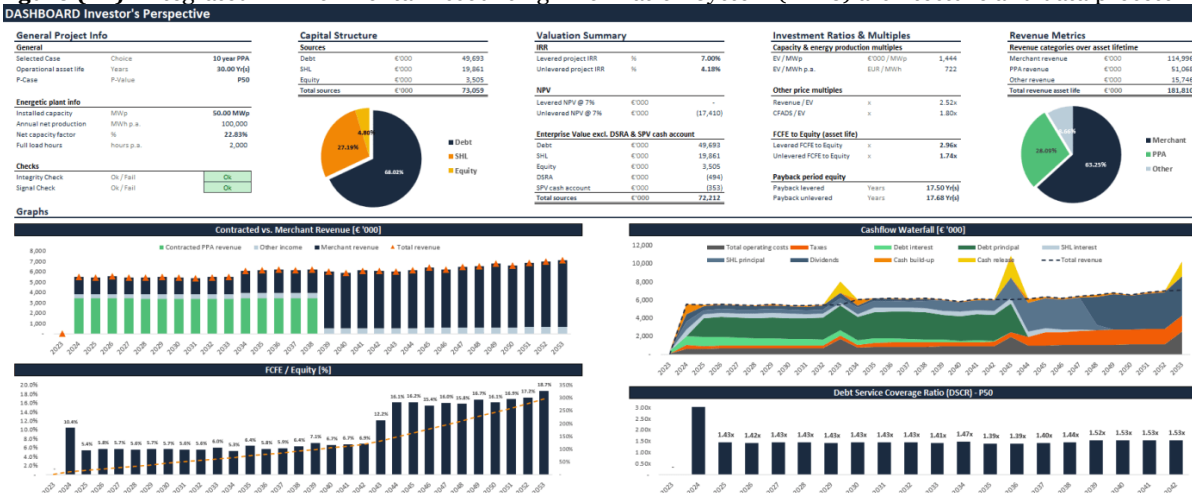
Figure (20): Financial Control Dashboard (Budget vs. Actual) for sustainability projects.



8.5 Accounting System Needed for Renewable Energy Investment

It is important to point out that accounting systems should be used to make investments in projects in renewable energy more successfully. Instruments like cost-benefit analysis, NPV, and IRR will play an integral part in determining project viability and minimizing financial risks associated with renewable energy investments. (International Renewable Energy Agency [IRENA], 2024, p. 49).

Figure (21): Integrated Environmental Accounting Information System (EAIS) architecture and data processing.



8.6 Iraq Encounters Many Problems in Accounting and Energy Sectors

The research reveals that there are many structural problems that make accounting less helpful for addressing problems associated with the transition to renewable energy. Some of these issues include poor environmental accounting system, the absence of regulations, lack of expertise, and reliance on oil for generating revenue. (Al-Fatlawi et al., 2024, p. 314).

8.7 There Are Many Possibilities Even with Obstacles

However, the results indicate that there are some possibilities even with the challenges faced by Iraq in these aspects. Using green accounting, improving renewable energy infrastructure, and embracing digitalization will bring significant benefits to the country. (Al-Obaidi & Al-Nasrawi, 2024, p. 158).

Discussion

The results from this research prove beyond reasonable doubt that accounting has an important and strategic role to play in facilitating the switch to renewable energy. Accounting today goes way beyond the scope of conventional accounting in the sense that it involves both financial and sustainability aspects. As such, it makes it possible for firms, and even countries to not only analyze financial performance but also sustainability outcomes.

In relation to the case of Iraq, the analysis indicates that there are various structural problems that have to be overcome in order for the shift towards renewables to take place. They involve a dependency on oil revenues, weaknesses in the use of environmental accounting in the country, absence of standardized sustainability accounting and lack of qualified manpower.

However, it is important to note that adopting modern accounting principles can go a long way towards addressing some of these issues. The integration of environmental information in accounting makes it easier to conduct financial analysis and make informed decisions.

Conclusion:

Accounting is one of the most important instruments that help achieve the global transition towards renewable energy. This method allows providing necessary information related to both finances and environment. Therefore, the development of accounting practices by adding environmental aspects became very effective in solving current problems in our planet.

In the case of Iraq, the implementation of new accounting methods based on the idea of sustainability may become extremely effective in decreasing negative effects on the environment and promoting sustainable development in the country. In other words, accounting may become a powerful tool that promotes development of renewable energy sources.

Thus, it is possible to state that in the present-day world it is economically and environmentally necessary to develop accounting practices and increase their sustainability.

Recommendations

In light of the results of the research, the following recommendations can be offered:

- 1- Establish environmental accounting standards to facilitate consistent and reliable sustainability reporting.
- 2- Foster sustainability accounting education programs at universities and other organizations to create necessary expertise.
- 3- Urging firms to implement ESG reporting principles to enhance transparency and encourage sustainable investments.
- 4- Secure legislative backing for the promotion of environmental and sustainability accounting initiatives.
- 5- Finance renewable energy projects via more effective accounting and financial reporting systems.

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