Financial and risk-related dynamics in energy management strategies: a South African perspective

Erika van der Westhuizen *(a)*

*(a)* Senior Lecturer, Department of Finance, Risk Management and Banking, University of South Africa, South Africa

**ABSTRACT**

The adoption of energy strategies is increasingly crucial for organisations, driven by the need to decrease energy cost and greenhouse gas emissions. The research evaluates the financial and risk-related factors influencing energy management strategies within South African organisations. The study delved into various financial aspects such as bank loans, corporate sponsorships, government funding, tax rebates and own funding alongside risk factors including disaster, reputational, operational, regulatory, strategic, financial, market, liquidity and credit risks. Using a quantitative non-experimental research design, data was collected through a questionnaire from 142 participants in the financial services industry, yielding a response from 77 individuals. Results indicate a predominant use of internal funding for energy projects, with limited utilisation of external funding options. Financial benefits such as reduced operating costs and potential tax rebates were acknowledged, yet challenges including high capital investment and inadequate finance were highlighted. Furthermore, risk management emerged as integral, although the involvement of risk management departments in energy strategy formulation was limited. Identified risks varied with disaster, reputational and operational risks ranking the highest. The study underscores the need for greater integration of risk management into energy strategy development to effectively address risk exposures. Organisations must balance the approach to energy strategy implementation with the organisational objectives and environmental responsibilities. Further research opportunities exist to explore alternative financing methods and address existing barriers to optimal energy strategy implementation.

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**Introduction**

In the beginning

According to Sola and Mota's research from 2020, the management of energy helps to contribute to the reduction of greenhouse gas (GHG) emissions and energy prices, which is a driving force for the promotion of the adoption of energy projects. According to PSEE (2015), energy management is defined as a methodical instrument that is used to improve the energy performance of an organisation through the utilisation of either management or technology. In order to effectively manage the costs and hazards involved with energy projects within companies, this component of management is absolutely necessary.

Both the Energy Lens (2014) and the PSEE (2015) state that energy management has the potential to assist an organisation in lowering costs and risks, enhancing the organization's reputation, and improving compliance with applicable regulations. According to Winkler (2005), energy is becoming an increasingly important aspect in the economic and social growth of South Africa as well as the development of South African organisations.

The purpose of the research that was published here was to conduct an analysis of the financial and risk-related elements that have an impact on the energy management strategy of a business.
The purpose of the study was to determine which techniques are most commonly utilised by groups by analysing a variety of financial choices, including bank loans, corporate sponsorships, government financing, tax refunds, and funds obtained from the institution itself. In addition, it investigated the many risk elements, such as those associated with disasters, reputations, operations, regulations, strategic planning, financial markets, liquidity, and credit, in order to determine which of these risks is the most significant when it comes to the formulation of energy strategies.

The paper is organised as follows: following the introduction, the second part will look at the finance and risk management aspects that influence energy strategy implementation. The third part will research design and methodology followed by the results and discussion of the findings. Finally, the paper concludes with key points, recommendations, and possible future research.

### Literature Review

#### Theoretical and Conceptual Background

**Finance**

Energy strategies for organisations can have significant implication that can impact their bottom line and long-term sustainability. Evaluating the financial aspects of energy strategies is an essential aspect for organisations. Some of the key financial aspects that organisations need to consider when implementing energy strategies include the initial investment, operational cost, the return on investment (ROI), energy efficiency options, renewable energy integration, risk mitigation, trends in the energy market, environmental and social responsibility, and various financial options available. Organisations require additional incentives to implement energy-saving methods that are more challenging, since those energy projects usually have longer payback periods (Department of Energy, 2016). Depending on the scale of the energy project organisations may explore different financial options. The most-used financing options for energy projects are loans, and organisations can obtain these from either a bank or from suppliers of energy-efficiency equipment (via corporate sponsorship) (PSEE, 2015). Other funding options include own funding, government funding through cash grants, tax rebates, or power purchase agreements (PPAs), usually used for renewable energy projects (PSEE, 2015). The South African government introduced additional incentives through tax incentives and rebates to increase investments in energy projects (Dippenaar, 2018). Energy strategy, from initial investment expenditures to long-term savings and risk mitigation, can have a substantial impact on an organisation's financial health. The financial performance, reputation, and overall sustainability objectives of the organisation can all benefit from a well-thought-out and implemented energy strategy.

Most organisations within South Africa are concerned with the cost of energy due to the increasing increase in electricity tariffs (PSEE, 2015). Acharya and Gumbi (2023) reported that the National Energy Regulator of South Africa (Nersa) has approved an energy tariff increase of 18.65% to Eskom from April 2023. Organisations require rigorous evaluation of the cost and investment before they implement energy projects. Energy management could assist by improving energy performance and reducing GHG emissions (Sola & Mota, 2020). Some benefits of introducing energy efficiency projects include setting energy efficiency targets; reducing overall costs and increasing profits; possible tax rebates; improving productivity; security and sustainability; resource conservation; and reducing GHG emissions (International Energy Agency [IEA], 2014). The barriers to implementing energy projects, especially in developing countries, include the lack of funds and investments, the lack of information and knowledge of different options (S, Thollander, & Cagno, 2017), inadequate incentives, and access to capital (the high initial capital investments) (Carlander & Thollander, 2023). However, according to Beckers, Chiara, Flesch, Maly, Silva and Stegemann, (2013), all big infrastructure projects face cost overruns, delays, unavailable private funding, and failed procurement processes. These problems could, however, be overcome through forward-looking risk management (Beckers et al., 2013). Improved risk management drives profit and losses, creates value, and increases competition (Beckers et al., 2013). Miecke, Rossi, Blazquez, Martin, Mera, Christensen, Peineke, Graf, Lyon, Stevens (2011) arrived at a similar conclusion, indicating that the biggest challenge to obtaining financing for energy projects is the failure to quantify and manage the associated risks. It can therefore be deduced that effective risk management is a crucial component of sustainable development energy projects.

**Risk management**

Energy strategies for organisations involve several risk management aspects that need to be carefully considered to ensure successful implementation and safeguard against potential negative outcomes. Establishing an effective energy strategy requires careful planning, analysis and commitment from the organisation. Communication regarding energy planning and strategies plays a vital role in the success of the energy risk management strategy. Organisations need to firstly, examine their culture and possible increases in their corporate social responsibility (CSR), various management aspects of their organisation, and the various finance options available critically. Secondly, organisations need to pay attention to the applicable policies and regulatory requirements to set a formal energy policy to guide the organisation in setting its targets and objectives. Next comes energy planning, when management assesses and determines which energy supply options are most appropriate for their organisation. The last part is to identify all the relevant risk exposures related to the different energy strategies. The identified risks are then analysed and evaluated to control the risk exposure of the organisation. After this, the various risks and energy strategies are monitored to identify corrective actions and preventative measures, as well as to use the information to alter the policies, targets and goals.
Risk management should form part of the energy management strategies of the organisation to enable them to identify the risks involved in the various energy strategies. Energy management plays a vital role in the overall business strategy, and top management is responsible for showing a commitment to energy and sustainability issues through the development of sound energy strategies within their organisations.

Risk identification requires organisations to take a holistic view of all the requirements, including legal and regulatory requirements and economic aspects, of the organisation. Organisations need to identify all the relevant sources of risk involved in a current or proposed energy strategy and the consequences of such strategy for the achievement of the targets and objectives of the organisation. From the literature and research, the following risks were identified as influencing energy strategies:

i. disaster risk – the risk of loss due to external factors outside the control of the organisation (Chapman, 2011);
ii. reputational risk – the risk of loss due to negative publicity relating to energy strategies (Ghosh, 2012);
iii. operational risk – the risk of loss due to damage to infrastructure, inadequate processes, procedures, and external influences in energy strategies (Young, 2022);
iv. regulatory risk – the risk of loss due to changes in tax legislation and policies related to energy strategies (Dentons, 2014);
v. financial risk – the risk of loss due to the viability of the organisation in terms of energy strategies (Watts, 2011);
vi. market risk – the risk of loss due to changes in the market value of the underlying instruments related to energy strategies (Watts, 2011);
vii. liquidity risk – the risk that the organisation will not be able to make financial payments to the counterparties pertaining to energy strategies (Young, 2022); and
viii. credit risk – the risk that the counterparty will not be able to fulfil its contractual obligations related to the energy strategies (Burger, Graeber, Schindlmayr, 2014).

Table 1 summarises the risk exposure and risk type involved in energy projects.

<table>
<thead>
<tr>
<th>Risk types</th>
<th>Risk exposures</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disaster risk</td>
<td>Organisation</td>
<td>Loss due to fire, floods, natural disasters, or terrorist attacks</td>
</tr>
<tr>
<td>Financial risk</td>
<td>Insufficient access to capital</td>
<td>Decrease in profitability due to adverse events that influence financial activities.</td>
</tr>
<tr>
<td></td>
<td>Economic slowdown and/or slow recovery</td>
<td>Cost overruns during implementation</td>
</tr>
<tr>
<td>Liquidity or credit</td>
<td>Counterparty</td>
<td>Default by the counterparty in a power purchase agreement</td>
</tr>
<tr>
<td>risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market risk</td>
<td>Weather</td>
<td>Variability in revenue due to inconsistency in the output of energy strategy, for example renewable energy solutions</td>
</tr>
<tr>
<td></td>
<td>Curtailment</td>
<td>Regional grid oversupply, where power outputs cannot be sold</td>
</tr>
<tr>
<td></td>
<td>Power prices</td>
<td>Variation in revenue due to wholesale price volatility</td>
</tr>
<tr>
<td>Operational risk</td>
<td>Loss, damage, and failure</td>
<td>Accidents, theft, fire, natural catastrophe, malfunctioning equipment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintenance complexities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safety hazards</td>
</tr>
<tr>
<td></td>
<td>Business interruptions</td>
<td>Revenue loss arising from failure, damage, or extreme weather.</td>
</tr>
<tr>
<td></td>
<td>Personnel</td>
<td>Responsibilities, qualifications, and experience of personnel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workforce adaption challenges</td>
</tr>
<tr>
<td>Regulatory risk</td>
<td>Policy</td>
<td>Backdated support cuts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Change in energy policy and incentives.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fines, penalties or loss of incentives due to non-compliance</td>
</tr>
<tr>
<td>Reputational risk</td>
<td>Organisation and/or brand image</td>
<td>Damage to the brand image of an organisation due to the failure of energy strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public backlash</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of customers or investors</td>
</tr>
<tr>
<td>Strategic risk</td>
<td>Loss or damage to technology</td>
<td>Outdated technology or failure of technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology compatibility issues</td>
</tr>
<tr>
<td></td>
<td>Start-up delays</td>
<td>Unexpected downtime</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revenue losses arising from delays in project construction</td>
</tr>
</tbody>
</table>

Table 1: Risks facing energy strategies.

Source: Botha (2017), adapted from Rivza and Rivza (2012) and Turner et al. (2013)
Risk management is crucial for the successful implementation of energy strategies in organisations. Organisations must identify all the risk exposures and address these risks proactively; organisations can enhance the chance of achieving their energy-related targets and objectives while safeguarding their financial performance and reputation.

A comprehensive strategy that includes data analysis, goal setting, financial assessment, risk management and employee engagement is needed to build an energy strategy. Organisations can create and implement effective energy strategies that complement the larger sustainability objectives and increase the long-term success by incorporating all these components.

**Research and Methodology**

**Research Design**

The research employed a quantitative non-experimental research design using a questionnaire to evaluate the financial and risk management required for implementing energy management strategies in South Africa. The questionnaire was developed after an extensive literature review of previous academic articles, government policies and relevant industry standards. The literature review established the criteria required for the successful implementation of energy projects in the context of risk management. The questionnaire was pre-tested by an industry expert, two academics, and a statistician to establish the validity and reliability of the questions. To determine if the questions measured what they were supposed to measure, content validity was utilised. From the feedback, the objectives and aims of the questionnaire were evident, with an average score of 4.6. They further found that the questions were comprehensive concerning risk criteria for implementing energy projects in organisations, with an average score of 3.8. The questions were further tested for internal consistency with a Cronbach's alpha of 0.9651, which shows a relatively high standard of internal consistency.

The Department of Energy (2015) prioritised the energy, transport, mining and industrial sectors for implementing alternative energy sources and to mitigate actions regarding climate change. Although the commerce section, which includes financial services, information technology, tourism and government, is small in relation to the other sectors, there is still great potential for implementing energy strategies and reducing energy costs in this sector. The study concentrated on this industry because the financial services industry offers many chances to improve energy management and efficiency. The target population for the research included managers involved in operations and strategic decision-making in the financial services industry. The study was conducted with 142 participants and 77 respondents, achieving a response rate of 54%, ensuring the findings and conclusions can be regarded as reliable and representative. The responses from the participants were first processed to ensure the data was free from inconsistencies and that the data was complete, whereafter it was coded. Descriptive statistics, in the form of distributions and percentages, were used to analyse the data for this article.

This study has received ethical clearance from the Unisa College of Economic and Management Sciences Research Ethics Review Committee (#2015_CEMS_FRMB_002) to distribute the questionnaire to managers within the financial services sector. Research participation was voluntary and by completing the questionnaire, participants gave their informed consent. The participants were informed that the data would be anonymous and they could withdraw from the study at any time. The following section provides insight into the responses in terms of the finance and risk management aspects required.

**Findings and Discussion**

The current research evaluated the attitude and opinions of managers in the financial services industry regarding the influence of incentives in terms of the implementation of energy strategies, and the strategy and funding employed within organisations. The research further evaluated the risks organisations face when implementing energy strategies. It was found that 60% of the respondents were business managers, 17% were financial managers, 12% were risk managers, 9% were in other management positions, and only 3% were energy managers, as indicated in Figure 1.

![Figure 1: Positions within the organisation](image)
Finance

The high cost of energy technologies was one of the reasons why the government introduced financial incentives for implementing various energy strategies. Figure 2 shows the various funding methods used by organisations for energy projects. The research showed that most organisations use their own funding (51.3%) to implement energy management strategies, with only 9% using bank loans, 3.9% using corporate sponsorships, and 7.8% using government funding. It should be noted that more than 50% of the respondents indicated that their organisations did not make use of bank loans (51.3%), corporate sponsorships (59%) or government funding (52.6%) for the implementation of energy management strategies. This contradicts the literature that indicates that the most used financing option for energy projects is bank loans or corporate sponsorships (PSEE, 2015). The large percentage of respondents who said they did not use any of the available financing choices could be a result of the overall lack of knowledge about the available possibilities and is an area for further research. This is in line with Sa, Thollander, and Cagno (2017) findings that one of the barriers to implementing energy projects is the lack of information and knowledge of the various options available.

Figure 2: Funding methods used for energy management strategies (percentage)

Benefits and drawbacks

Some of the financial benefits of implementing energy projects as listed by IEA (2014), include the possible tax rebate and a decrease in operating costs. The financial drawbacks of implementing energy projects as indicated in the literature include inadequate finance and incentives, high initial capital investments, and the unavailability of cost information relating to various energy strategies. The research evaluated the respondent’s perceptions of these benefits and barriers.

From the research, it was evident that most respondents (70.1%) believed that a decrease in operating cost influenced the decision to invest in energy strategies, with 42.9% stating that a tax rebate influenced the decision by their organisation to adopt an energy strategy (Figure 3). This confirms that the tax incentives and rebates introduced by the South African government do lead to increased investment in energy projects, as indicated by Dippenaar (2018). These benefits are therefore essential for organisations to consider when setting their energy strategies.

Figure 3: Influence of benefits on energy strategy decisions

Inadequate finance and incentives, high capital investment, and the unavailability of cost information has an influence on the decision of organisations to implement energy management strategies. Figure 4 shows that the respondents agreed that high capital
investments (68.8%), unavailable cost information (59.7%), and inadequate finance and incentives (48.1%) influenced the energy strategy decision within their organisations. This is in line with the findings of Carlander and Thollander (2023) who indicated the barriers to implementing energy projects as inadequate incentives and access to capital. The percentage of respondents who did not know what the effect of these were on their organisation was relatively high, with 31.2% (inadequate finance and investment), 31.2% (high capital investment), and 36.4% (unavailable cost information), respectively. Organisations should address this through communication and education on energy strategies used by the organisations.

Figure 4: Influence of drawbacks on energy strategy decisions

Further research could be conducted on the various financing methods and the benefits that these have for organisations. One of the methods that organisations could investigate is the different finance options available to them to increase their implementation without incurring high additional costs. Cost information regarding energy strategies is vital for organisations when they set their baseline year, enabling them to monitor and evaluate their energy performance. This information is considered challenging to obtain, with 59% of respondents indicating agreement with this statement. It might be that the information is available, but not easily accessible, or that organisations are unaware of where to find it.

Risk management

The current research evaluated whether risk management departments within organisations participate in setting an energy management strategy. It is essential for risk management to form part of the overall energy management strategy to identify and evaluate the risks in implementing different energy strategies. Only 29.9% of the respondents indicated that the risk management department participated setting the energy management strategy, with 13% showing some degree of involvement, 3.9% a moderate degree of involvement, 7.8% a degree of involvement and 5.2% a strong involvement. With another 29.9% of the respondents indicating that they had no participation in the process as shown in Figure 5. Responding to the question whether the risk management department was part of the process, 41.3% stated that they did not know. This might have been the case since they were not directly involved in the risk management aspect, as can be seen in the section on demographic information of respondents.

Figure 5: Risk management department sets energy management strategies

Because risk management does not form part of the setting of the energy strategy, this might be an area on which organisations should focus, as risk managers should be closely involved in energy management strategies to assist with identifying and evaluating the various risks. As indicated by Beckers et al. (2013), improved risk management will drive profits and losses, create value and increase competition. Energy projects are exposed to financial, market, reputational, strategic, credit, liquidity, operational, disaster, and
regulatory risks. In Table 2, it can be seen that most respondents indicated that the various risks had an influence on the setting of the energy management strategy. About 30% of the respondents stated that they did not know which risks had an influence. This might be due to them not being directly involved in the risk management aspect of the organisation, as was seen in the section on demographics, or that this information was not communicated effectively within the organisation. Around 20% of respondents indicated that the various risks had no influence on their organisation when setting energy management strategies. This confirms the findings of Michelez et al. (2011), which indicated that the biggest challenge in obtaining finance for energy projects is the failure to quantify and manage the associated risks.

### Table 2: Risk types in setting energy strategies

<table>
<thead>
<tr>
<th>Risk Type</th>
<th>Don't know</th>
<th>No degree</th>
<th>To a degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial risk</td>
<td>28.2</td>
<td>24.4</td>
<td>47.4</td>
</tr>
<tr>
<td>Credit risk</td>
<td>32.1</td>
<td>35.9</td>
<td>32.0</td>
</tr>
<tr>
<td>Reputational risk</td>
<td>28.2</td>
<td>19.2</td>
<td>52.6</td>
</tr>
<tr>
<td>Market risk</td>
<td>29.5</td>
<td>29.5</td>
<td>41.0</td>
</tr>
<tr>
<td>Liquidity risk</td>
<td>29.5</td>
<td>37.2</td>
<td>33.3</td>
</tr>
<tr>
<td>Operational risk</td>
<td>29.5</td>
<td>19.2</td>
<td>51.3</td>
</tr>
<tr>
<td>Disaster risk</td>
<td>28.2</td>
<td>17.9</td>
<td>53.9</td>
</tr>
<tr>
<td>Regulatory risk</td>
<td>30.8</td>
<td>19.2</td>
<td>50.0</td>
</tr>
<tr>
<td>Strategic risk</td>
<td>29.5</td>
<td>20.5</td>
<td>50.0</td>
</tr>
</tbody>
</table>

An in-depth portrayal of the risks that influence the organisation is presented in Figure 6. Figure 6 shows that 53.9% of respondents indicated that disaster risk (i.e., loss due to fire, flood, natural disasters or environmental factors) has the most significant influence on the setting of an energy management strategy. This aligns with the findings of the World Economic Forum Global Risks Reports (2023), which estimated that the top three risks for the next ten years include failure to mitigate climate change, failure of climate-change adaption and natural disasters and extreme weather events. In the current study, disaster risk was classified as the risk of loss due to external factors beyond the control of the organisation. Business interruptions could occur due to extreme weather, other environmental events, or increased load shedding, which could negatively affect the turnover of the organisation. Since 2007, South Africa has adopted the phrase “load shedding,” which refers to planned supply interruptions that must be carried out when demand for power exceeds supply. As this risk is beyond the control of the organisation, special attention needs to be given to this aspect to manage the risk.

![Figure 6: Risk types in energy management strategies](image)

Reputational risk was classified as the risk of loss due to damaging publicity and the public image related to non-compliance to energy risk regulations and negative results from energy strategies. Of the respondents, 52.6% indicated that reputational risk influenced the energy strategy. This is in line with findings from Small (2012), which showed that negative publicity caused by energy projects can increase the reputational risk of an organisation. Damage to reputation could decrease sales, harm the recruitment of high-level staff and business partners, and make financial packages more expensive for organisations. However, the successful implementation of energy strategies could increase the reputation of organisations and decrease costs.

The third risk was operational risk (51.3%), which was defined as the risk of loss, damage or failure due to inadequate internal processes, people, systems, and external influences within the energy strategy. The results confirm those of Watts (2011), who found that 41% of the respondents rated operational risk as a medium risk and 15% as a high risk for renewable energy projects. From the study by Protiviti (2023), culture and people were at the top of the risk agenda, with the inability to attract and retain top talent, rising
labour cost, and the skills required from future employees. Operational risk in energy management strategies therefore needs to be identified in order to assess and manage these risks effectively.

The fourth risk was regulatory and strategic risk. Regulatory risk (50.0%) was identified as a risk related to the uncertainty of regulations for various transactions, or a change in the energy regulatory environment. This confirms the findings by Dentons (2014), who indicated that political risk is one of the major factors in energy projects, especially in developing countries. As this risk is very difficult to mitigate, it should be carefully analysed in terms of energy projects (Burger et al., 2014). Most organisations are exposed to regulatory risk due to changes in tax legislation, new taxes being implemented, and changes in the subsidies and policies within the organisation and the country. These changes in taxes and policies could affect the profitability of an organisation. It is also difficult to account for this risk when making investment decisions. Strategic risk (50.0%) was classified as the risk that affected the viability of the organisation in terms of energy strategy. Organisations make various strategic decisions to increase their profitability, and the risk of making the wrong decision about an energy strategy could result in substantial losses for the organisation. Therefore, organisations must ensure that the potential threats have been well-defined for the energy projects to be successful (Watts, 2011).

The fifth risk, as indicated by the respondents, was financial risk (47.4%), defined as the risk of insufficient access to capital to manage energy strategies. Financial risk in energy strategies could have an adverse effect on the turnover of organisations, which would influence their planning and management of and investment in energy strategies. However, Watts (2011) found that the most important risk in renewable energy projects will be financial risk due to the significant investment requirement. RUSEFF (2011) also confirmed this, which indicated that energy projects require long-term investments and large capital outlay.

The three lowest-rated risks were credit, liquidity, and market risks, as seen in Figure 6. Market risk is the risk of loss due to changes in the market value of the underlying instrument related to energy strategies (Watts, 2011). This type of risk comprises interest rate risk, exchange rate risk, and commodity price risk. According to the data, 41.0% of the respondents indicated market risk as the sixth most significant risk. This is lower than the findings of Watts (2011), who found that market risk is classified as a medium risk by 54% of respondents in terms of renewable energy projects. Market risk could adversely affect the organisation if there are changes in the interest rate, exchange rate, or commodity prices, all of which will influence the turnover of the organisation.

Credit risk (32.0%) was the lowest-ranking risk, and was defined by Burger, Graeber, and Schindlmayr (2014) as the risk that a counterparty might not fulfil its contractual obligations regarding the financial loans related to the energy strategy. According to Lee and Zhong (2015), credit risk in energy projects is easily quantified and managed, which is probably the reason why this was the lowest-ranking risk. Nevertheless, credit risk in energy projects needs to be identified and addressed early to manage the risk accordingly.

Liquidity risk was ranked as the second lowest risk at 33.3% and was explained in the questionnaire as the risk that the organisation will not be able to make financial payments to the counterparty related to the energy strategies that had been employed. Liquidity risk is essential in energy strategies, due to the large amount of capital and investment required to implement these strategies. The research showed that most organisations are currently using their own funding to implement energy strategies (figure 2), which might be one of the reasons respondents might have ranked this risk so low. As liquidity risk was defined by Young (2022) as the risk that organisations will not be able to make financial payments to the counterparty, this risk might increase when organisations start using more bank loans, corporate sponsorships, and government grants.

Conclusion

Implementing energy strategies presents both opportunities and challenges for organisations. While implementing new energy strategies has advantages in terms of cost savings, sustainability and improved reputation, organisations must also take into account the initial investment, technical challenges and potential risks. A well-planned energy strategy can help organisations achieve a balance between environmental responsibility and financial viability.

Risk management should form part of the energy management strategies of organisations to enable them to identify the various risks involved within the different energy strategies. Organisations need to conduct comprehensive risk assessments that will assist in identifying the potential risks associated with the energy strategy. These could include regulatory changes, environmental impacts, technology and human resource distributions and financial risk. Organisations need to evaluate the probability of occurrence and the potential impact of these risks in terms of their energy objectives. This can be achieved through risk matrixes.

Organisations need to promote knowledge sharing and best practices of various energy strategies and risks within these energy strategies to increase the investment in energy strategies and the communication and acceptance by employees within the organisation. This can be achieved through stakeholder engagement by involving all departments (finance, operations, legal and risk management) within the organisation. They should enhance their communication channels to effectively communicate their energy strategy throughout the organisation. Further strategies are scenario planning and risk mitigation strategies tailored to address the energy objectives and risks. Continuous monitoring and review are important steps in tracking the effectiveness of the strategies and risk mitigation measures implemented. The organisation should further update the risk assessment regularly and foster a culture of awareness and accountability.
Energy strategies could assist organisations to improve their CSR by showing a positive attitude towards energy and environmental conservation. Various finance methods are available to organisations for the implementation of energy strategies. From the research, it was seen that most still use their own funding. Further research could be conducted on the various finance options, the benefits these methods might have, and possible reasons why organisations are not currently using these methods. Further research could also be conducted to evaluate how organisations report on the various risks related to energy projects and energy objectives within their integrated reports to establish whether these risks are reported and managed within the organisation. Organisations can develop more robust and sustainable energy strategies that align with their financial goals, risk management practices, and overall business objectives.

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