A Proposed Dimension of Sustainable Energy Practices towards Long Term Commitment

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Abstract. The paper aims to propose dimensions for different levels of action on sustainable energy technologies. The dimensions are search, readiness, practices, and consistency. The study used content analysis from the literature, observation of events, and examination of the models for sustainable energy. The search dimension answers the question of how will you contribute to the implementation of sustainable energy technologies? This includes finding your values and ideals on sustainable energy technologies. The second dimension is readiness. At this level, you are ready to fulfil your aims in sustainable energy technologies. The third dimension is the practices. The actions that you implement to make your energy sustainable. The fourth dimension is consistency, it answers the questions, are you consistent in your practices for sustainable energy? And is there a time when you have not practiced sustainable energy? Overall, these proposed dimensions for sustainable energy help decision-makers create strategies to advance the rate of action for cleaner energy.

1 Introduction

The continuous depletion of natural resources prompted the need to have technologies that provides sustainability, specifically in the aspects of energy conservation. The rapid increased in urbanization as well as the massive population had affected the environment resulting to a negative effect on technological innovation [1]. Countries around the world agreed to take steps to preserve the natural resources, one of which is to lower the used of carbon in different industries. Another strategy is to decrease the level of global warming. Some of the goals of the United Nations Sustainable Development Goals (SDG) [2], such as having an affordable and cleaner energy, building sustainable cities and communities and climate action could be addressed in the utilization of sustainable energy technologies. Sustainable Energy comes from resources in the operations without compromising the future generations’ energy needs [3]. Solar, wind and hydropower are the most notable sources of sustainable energy. Likewise, sustainable energy technologies (SET) are solutions in production and transformation of energy that gives way to transition from having a high carbon emission to zero carbon utilization [4]. The work on the most recent developments of phase change materials in solar energy systems enables the use of solar energy at any given
time, even when there is no natural solar radiation, and offers recommendations to enhance the quality of solar energy [5].

Several frameworks were provided to increase the rate of using sustainable energy [6-8]. The use of renewable energy emits lesser greenhouse gas emissions by 90 % to 99 % and less pollutants by 70% to 90% as compared to coal fired power plants [9]. Current studies from the literature evaluate the impact of sustainable energy factors such as social, economic and environmental factors [10]. Also, several advances on solar energy technologies. The study aims to address the gap in understanding the different layers of adopting sustainable energy in organizations. It proposes dimensions for effective sustainable energy transition which uncovers the levels of adoption. The research fills a theoretical and practical gap by evaluating an organization's values and capabilities, taking actions, and continuously improving and implementing renewable energy sources.

2 Materials and Methods

The study used content analysis from the literature, observation of events regarding sustainable energy, which in effect leads to the development of the proposed dimensions of sustainable energy technology. It looks at the definition of sustainable energy and its characteristics. Also, it examines the models for sustainable energy technologies such as companies who prioritized clean energy in their processes or operations. The review of past studies and body of knowledge was conducted with the keywords sustainable energy transitions using the science direct database. The results show 328, 297 papers. Then the search was refined with the selection of past 5 years and the subject area is energy. The following paragraphs are the various research and perspectives were obtained from the review of literature and past studies conducted.

Readiness [11], Clear visions [12], social innovation and global citizenship [13], awareness and behavioural change [14], are the key factors to accelerate the sustainable energy transitions. Moreover, in the study on Southeast Asia’s countries transition to sustainable energy, the economic aspect is a crucial factor followed by technological, environmental and political factors [15]. Same geographic study, states that carbon finance, carbon taxes, clean technologies adoptions are key factors to low carbon energy [16]. Other factors [17], sustainable energy tools [18], and other frameworks [19] were suggested to consider in exploring the sustainability dimensions of energy.

3 Results and Discussions

After the evaluation of the recent trends and approaches to sustainable energy transitions. Table 1 shows the paper’s proposed dimensions of sustainable energy. The purpose of these dimensions is to effectively accelerate the transitions into sustainable. The first dimension is the search on how you will contribute to attaining a sustainable energy with the use of renewable sources. It answers the question how will you contribute to the implementation of sustainable energy technologies? This includes finding your values and ideals in sustainable energy technologies. Examining how you can apply sustainable energy technologies to your organization. As well as recognizing the limitations of your resources and your goals for sustainable energy. Finally, the organization's acceptance of their responsibility to contribute to the achievement of sustainable energy is the main factor in this dimension.

Table 1. Four Dimensions of Sustainable Energy
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Descriptions</th>
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<tbody>
<tr>
<td>Search</td>
<td>It answers the question: How will you contribute to the implementation of sustainable energy technologies?</td>
</tr>
<tr>
<td>Readiness</td>
<td>Are you ready to fulfil your aims in sustainable energy technologies?</td>
</tr>
<tr>
<td>Practices</td>
<td>What are the actions that you implement to make your energy sustainable?</td>
</tr>
<tr>
<td>Consistency</td>
<td>It answers the questions: Are you consistent in your practices for sustainable energy? Is there a time when you have not practiced sustainable energy?</td>
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The second dimension is readiness. At this level, you are ready to fulfil your aims in sustainable energy technologies. Initiating your journey towards sustainable energy which is often excluded. Once you accept and are ready you will find your missions for sustainable energy technologies. You are willing to open your operations to adopt to sustainable energy with the use of technologies that comes from renewable sources such as solar panels, wind and among others.

The third dimension is the practices. To implement the ideals and goals of sustainable energy by taking the necessary actions. The fourth dimension is consistency which reflects a long-term commitment for adapting sustainable energy. This level increases the rate of advancing energy that is sustainable. It answers questions of consistency in its practices and the time it has not practiced being sustainable. To implement those changes in the organization so that you realize your goals and objectives.

To be consistent in practice regardless of the organization’s situations knowing that you value these priorities. All of these dimensions are important in order to examine the nature of effective transition into sustainable energy.

**4 Conclusions**

Sustainable energy practices can be demonstrated among members of organizations. Whatever be the position of members of organization, he can contribute to the practices of sustainable energy. The search dimension is a critical level as it covers finding values and ideals in sustainable energy. Consistency leads us to the advancement of sustainable energy technologies, which is a long-term commitment.

The proposed dimension can be used by individual person as well as the whole organization. This is within their control. These dimensions are important factors in adopting sustainable energy. These dimensions cover different perspective such as within and outside factors to effectively adopt to sustainable energy. The effective adoption starts at the search or intention to contribute. The readiness is to assess your capabilities on taking actions. In
the end, the study will identify which dimension we should focus so we can have progress in the adoption of sustainable energy.

References


