

The Role of ODL in the Promotion of Renewable Energy Education for Sustainable Development in Tanzania

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Abstract

Renewable Energy Education (REE) is vital for a society to shift from fossil fuels to clean and sustainable green energy. While the promotion of Renewable energy technologies is positive for sustainable development, the users are still facing many challenges due to lack of expertise, technical support services and public knowledge regarding these technologies. Education plays a pivotal role in creating awareness and promotion of Renewable energy concepts amongst the general public. This paper intends to prove that, ODL system is the best reliable and affordable education system for training the larger part of population to empower them on adoption of renewable energy technologies. The study based on literature review and documentation to reveal the way renewable energy education is being disseminated through Open and distance learning. The findings prove that ODL system stands a better chance of educating a larger part of the population compared to conventional systems. It is recommended that ODL institutions consider the establishment of courses that meet the energy market demand for sustainable development.

Keywords: *Renewable Energy Education, Open and Distance Learning, Sustainable Development*

1.0 INTRODUCTION

Energy is essential to economic and social development and improved quality of life in all countries (Acikgoz, 2011). The investment and transition to Renewable Energy (RE) sources for energy harness is a fundamental part of the Sustainable Development Goals (SDGs), goal number 7 emphasizes the member nations to ensure the access to affordable, reliable, sustainable and modern energy for all while increasing substantially the share to renewable energy in the global energy mix (UN, 2018). To achieve the Sustainable Development Goals education plays a pivotal role in creating awareness and promotion of renewable energy concepts amongst the general public.

Agenda 21 produced at the 1992 Earth Summit in Rio noted that the need to control atmospheric emissions of greenhouse and other gases and substances will increasingly need to be based on efficiency in energy production, transmission, distribution and consumption, and on growing reliance on environmentally sound energy systems, particularly renewable sources of energy (Bhattacharya, 2011). Renewable energy, often referred to as "clean energy" or "green energy," is energy that is derived from natural resources that are

continuously replenished and can be used without depleting them. The renewable energy sources include; hydropower, wind, solar, geothermal, and biomass. These resources are considered renewable because they are naturally replenished on a human timescale, typically over a short period of time compared to the time it takes for fossil fuels to form. Renewable energy sources are a sustainable and environmentally friendly alternative to traditional fossil fuels, which are finite and contribute to environmental pollution and climate change (IRENA, 2022).

Furthermore, rising international concern about global warming and the rapid development of the renewable energy industry over recent years has led to a need for multidisciplinary programs in energy studies (Jennings and Lund, 2011). The renewable energy industry is facing difficult to obtain suitably qualified personnel with appropriate training and expertise, as a result there exists an opportunity for universities and technical institutes to meet this need (Charko & Jennings, 2008).

According to Acikgoz (2011) many countries around the world took initiatives for the development and dissemination of renewable energy technologies immediately after the first oil crisis in 1973 spurred by the 4th Middle East War. However, in spite of ambitious programmes of many countries in this direction, the dissemination of these technologies has not met the expectations of the planners and implementing organizations resulting in a few successful cases of the adoption of renewable energy technologies.

The poor dissemination of renewable energy technologies according to Acikgoz (2011) may be attributed to several factors; one of the important inhibiting factors is the lack of a structured framework for providing renewable energy education. His study concluded that it is essential to develop and implement well-designed energy education programs, including formal and non-formal education in cooperation with all foundations dealing with energy. The hypothesis this paper intends to prove is that, Open and Distance Learning (ODL) system is the best reliable and affordable education system for training the larger part of population to empower them on adoption of renewable energy technologies.

The International Renewable Energy Agency (IRENA) Framework defines Renewable Energy Education (REE) as a lifelong learning process that empowers individuals and communities to understand, contribute to, and benefit from the transition to a renewable energy future. It describes the key elements of REE to include 'the importance of renewable energy, types of renewable energy technologies, their benefits and challenges. REE also include acquiring knowledge and skills in installation, operation and maintenance of respective facilities. It also promotes values and attitudes on sustainability, environmental stewardship and social equity (IRENA, 2022).

The most in-demand skills for renewable energy professionals include; technical, soft skills, business, environmental and innovative skills. According to U.S Bureau of Statistics, skills required for renewable energy technologies include; engineering for designing, developing and testing renewable energy systems and technologies. They need to have a strong understanding of engineering principles, as well as the specific technologies they work with. Renewable energy technologies further rely on a variety of physical principles, such as thermodynamics, electromagnetism, and fluid dynamics. Furthermore, renewable energy professionals need to be able to use mathematics to solve problems, analyze data, and design and optimize renewable energy systems. They also need knowledge on computer science, renewable energy systems are increasingly becoming computerized so renewable energy professionals need to have some basic computer science skills, such as programming and data analysis.

Communication skills are also needed by renewable energy professionals to be able to communicate effectively with a variety of stakeholders, including engineers, scientists, policymakers, and the public. They need to be able to explain complex technical concepts in a clear and concise way. Renewable energy professionals also need to have project management skills in order to plan, organize, and execute renewable energy projects successfully. In addition to these technical skills, renewable energy professionals also need to have strong soft skills, such as problem-solving, teamwork, and adaptability (U.S. Bureau of Labor Statistics, <https://www.bls.gov/>).

The Renewable Energy Education (REE) is vital for a transition to clean and sustainable green energy if it is implemented early in the education system. This will help students to comprehend the RE technologies and gain motivation and interest to pursue higher education and career in this sector (Hoque *et al.*, 2022). Renewable energy is one of the fastest-growing sectors in the world, offering a variety of career opportunities for professionals with different backgrounds and skill sets. However, like every new emerging technology, RE need to be promoted (Yuksel, 2019). In that case, education systems play a crucial role in increasing awareness and developing positive attitudes toward the adoption of renewable energy technologies and environmental conservation at large.

This paper aims to highlight the contribution of Open and Distance Learning (ODL) in promoting REE in the tertiary education level with the assumption that ODL is the best alternative to meet educational needs for a larger part of the population as compared to the conventional education system. This is in line with Sustainable Development Goals number 4 that emphasizes the access to inclusive and equitable quality education for all at all levels including University (UN, 2018).

ODL can be defined differently from different angles from which a person has decided to target it. Technically, one can deduce the meaning of ODL from two main concepts. The first concept is Distance Education and the other being Open Learning; the combination of these two concepts leads to what is known as Open and Distance Learning. The concept 'distance education' to mean the ability to study from the distance, while 'open Learning' is the ability for anyone to access the educational offer from where one is (Wawa & Hashil, 2019).

There are several salient features of ODL that favor the training of a larger part of the population, these features include; accessibility, flexibility and affordability. ODL entails a student-centered approach that gives students flexibility and choice over what, when, where and how they learn. It opens the academic boundaries to all in need of education and educable. An essential characteristic of Open Learning is the removal of barriers to learning, where technologies and mode of delivery that are available to everyone need to be used.

A second feature for ODL is freedom of time for meeting the programme requirements; ODL system allows for a learner to study on his/her own pace. This has been made possible through freedom in taking a number of units preferred by a student, the university conducting several examination sessions during the academic year. Learners are not constrained to write examinations in a particular period. In Contrast to conversional systems, a student is bound to a specified period of time to complete his or her programme, with specific examination sessions and location restricted. A third salient feature of ODL is Freedom of Place in which a person wants to study. In ODL, students are not required to fulfill a residency requirement at the host institution. Students in ODL system are not required to leave their home or work place as they pursue a program of study. So being a student at an ODL University from a different region, country or continent it is 100% possible to pursue and complete studies without being physically present in the academic institution.

Technological advancement for instance the use of mobile phones as devices for web-based education is major contributor for ODL success hence open doors for everyone to access education. The use of ICT though challenged with connectivity problems and affordability of the appropriate devices still availability of internet cafes up to district levels remains as alternatives. All these features prove that ODL is the best alternative that is inclusive and accessible to all people including rural communities to access education wherever they are.

2.0 MATERIALS AND METHODS

This study adopted a qualitative research approach. Kumar (2011) describes qualitative research as the one whose purpose is primarily to describe a situation, phenomena, problem or event and if the analysis is done to establish the

variation of such situation without quantifying it. The situation described here is the role of ODL in promotion of renewable energy education as the effort to minimize the lack of public knowledge and expertise in energy sector for sustainable developments.

The literature search was adopted as a data collection tool that involved searching for the existing knowledge by analyzing what has already been done by other researchers in renewable energy education. This helped to integrate the research findings into the existing body of knowledge (Kumar, 2011). The reviewed literatures were from books, journals and from electronic databases. This was carried out through search engines like; Google scholar, Google, Publish or perish to find out the published literatures by using the keywords identified in this study. The key words include; renewable energy education, open and distance learning and sustainable development.

Kumar describes the procedure of reviewing the literature to involve; searching and selecting the published literature relevant to the research topic, reading them and pull together themes and issues relevant to the study. While going through the literature a researcher should examine and note the significant differences of opinions among the researchers on the subject matter and identify the gaps that exist in the body of knowledge (Kumar, 2011).

Along with the literature review, this study also employed the documentation method. Different writers on qualitative research methods have acknowledged that documentation can serve as a valuable data collection instrument in various research, organizational, and information management contexts (Mack *et al.*, 2011; Kumar 2011; Creswell, 2018). Creswell states that documentation is one of the primary sources of data for qualitative researchers. He defines documentation as any written record that describes, explains, or interprets a phenomenon of interest. He provides examples of documentation such as diaries, journals, letters, emails, government documents, meeting minutes, and historical records (Creswell, 2018). In this study, The Open University of Tanzania Prospectus, Facts and figures 2022, Faculty of Science Technology and Environmental Studies Booklet and OUT Strategic Plan 2023-2026 were used as relevant documentations this study. These documents served as sources for the programme offered, their contents; and information on implementation or operation related to REE. Furthermore, personal experience of the researcher was used to support the opinions from other writers; particularly on energy field. Personal experience can be a valid data collection method in certain research contexts, particularly in qualitative research. However, it is crucial to acknowledge the subjectivity of personal experiences and take steps to ensure the data's reliability and validity (Kumar, 2011).

Literature review and documentation was adopted for this study due to the available existing studies on renewable energy education. The reviewed

literature has described a lot on the need for REE to different levels of education systems and to general public, mode of delivery both formal and informal, methods of delivery including traditional class room teaching, and online learning. However, little has been done on teaching about REE through a formalized Open and Distance learning, a gap that this study intends to fill.

This study considered The Open University of Tanzania as a case study. It describes the role played by ODL in disseminating renewable energy education. The selection of ODL was contributed by a 23 years' work experience of the author in this institution as a teacher and researcher in the energy field. This enabled easy access to documentations in the respective departments, course delivery and personal experience on prospects and challenges related to REE through ODL.

3.0 RESULTS AND DISCUSSION

3.1 ODL and Renewable Energy Education

This section presents the findings of this study and discusses the emerging themes aligned with the research objective, namely the role of ODL on Renewable Energy Education. The section starts by highlighting that adoption of renewable energy technologies is linked to education as a major factor for awareness creation and acquiring of knowledge.

Hoque *et al.* (2022) who conducted a study in Malaysia and Bangladesh found that developing countries were ambitious to implement policies related to harnessing energy from renewable sources but with low achievement. The common factor in not achieving their respected goals was the lack of awareness, and availability of knowledge on renewable energy concepts amongst the general public. This can be supported by the writer of this article who conducted a study on adoption of biogas technology in Tanzania. The main objective of the study was to explore the root causes for low adoption of biogas technology as an alternative source of renewable energy in semi-arid areas of Tanzania. She found that despite the potential and existence of favorable conditions for technology adoption and the existence of biogas programmes in the study area for more than 15 years, the adoption was at a low level and at the decrease rate. The identified factors among others were; little knowledge of the biogas technology, unavailable and unreliable technical services which discouraged both adopters of the technology as well as those who showed interest in adopting it. The study recommended among others, education for the community for awareness creation and training for biogas users on proper operation and maintenance of biogas plants for sustainability of the technology (Wawa, 2012). Hoque *et al* (2022) comment that education plays a pivotal role in creating and promoting awareness about various concepts that in turn help to drive society to achieve its goals. Similarly, renewable energy education is vital for a society to shift to clean and sustainable green energy from fossil fuels.

Jennings and Lund (2011) also establish that energy studies is rapidly emerging as a new discipline of relevance to meeting future energy needs within the context of ecologically sustainable development. They reveal that many energy professionals lack formal training in the skills and disciplines needed to undertake work on renewable energy systems and energy management. They propose that the availability of external, online courses is proving attractive to people interested in energy policy and energy systems. In support to that, Hoque *et al.* (2022) establish that mobile learning is a mean of equipping people with greater mobility, communication, and access to resources all over the world via the Internet. Online and mobile learning as suggested by these authors is based on internet; the Internet is expected to play a significant role in university-level education in general and renewable energy education (REE) in particular as suggested by Bhattacharya (2011).

Bhattacharya (2011) however reveals that, REE at different universities is characterized by a lack of uniformity in terms of duration, coursework and emphasis on research. He recommends the establishment of guidelines and standards regarding academic programs and to establish a system of accreditation, preferably global, of REE in different academic disciplines and departments. Universities will need to make considerable adjustments to meet their expected role in the future and in response to certain developments, particularly the internet. In the same line Kandpal and Broman (2014) emphasize that renewable energy education should focus on providing functional knowledge and understanding of facts, concepts, principles and technologies for harnessing renewable energy. He further emphasizes that REE should target the entire population as its audience. They propose for both formal and informal modes of education delivery to be used where formal education includes instructions given in schools, colleges and universities, expected to be well-planned, and controlled in an organized system. Informal education on the other hand involves learning from mass communication media that help those who have never gone to school or adults interested in acquiring new skills and knowledge on renewable energy.

Extracted from these studies with connection to this study is that renewable energy education is vital to help the countries to implement the policies related to harnessing renewable energy technologies. This can be done by learning institutions developing programmes that meet the education needs of the public in general through formal and non-formal education systems. This study considers online delivery modes under a formalized ODL mode that is more flexible, inclusive and accessible to a greater part of the population.

Kandpal & Broman (2014) revealed that at the university level many countries are offering courses related to REE at both undergraduate and postgraduate levels. These courses cover the disciplines of applied sciences, Energy management, Climate change and energy, Carbon Management, Global energy

management and Sustainable management. Through Google search the author of this article found that there are several Open and Distance Learning (ODL) institutions around the world that offer courses related to renewable energy education. These courses can range from short certificate programs to full-fledged degree programs. Several Universities offering these programmes including; The Open University (OU) - United Kingdom, Penn State World Campus – USA, UNISA - University of South Africa, Massachusetts Institute of Technology (MIT) – USA, The University of California, Berkeley Extension – USA, African Virtual University (AVU), Indira Gandhi National Open University (IGNOU) – India and the Open University of Tanzania (OUT).

In Tanzania, the Open University of Tanzania (OUT) is the largest and most well-known ODL institution in the country, accredited by Tanzania Commission for Universities (TCU) which is the regulatory body responsible for accrediting and overseeing universities in Tanzania. In addition, Sokoine University of Agriculture being a conventional university also offers some ODL programs in agriculture-related fields, catering to the needs of individuals interested in agricultural education.

The Open University of Tanzania being ODL institution its delivery modes are accessible to all in need of education, flexible and give freedom to its learners to study on their own pace whenever they are. Its learning platforms have digital materials, web-links to access E-resources. Field practical, projects and research activities also consider students' convenient times and places. Face to face sessions, are conducted at regional and coordination centres to enable student study whenever they want.

3.2 Contribution of ODL to Renewable Energy Education

The Open University of Tanzania is a fast-growing institution in terms of enrolling undergraduate and postgraduate students. University offers various certificates, diplomas, bachelor degrees, and master and doctorate degrees in various disciplines since its inception in 1994. The university operates through 27 regional centers spread throughout Tanzania Mainland and its islands Unguja and Pemba in Zanzibar, as well to other countries. The University has well established faculties, institutes and directorates offering degrees and non-degree programmes through blended mode. Additionally, The University hosts three centres namely the ACDE Technical Committee in Collaboration (ACDE TCC), UNESCO Chair, and University Teaching and Learning Services Unit (UTLS). As a university, in addition to teaching, its academic members also conduct research and consultancies in various fields of study that touches the surrounding communities in general (OUT Facts and Figures, www.out.ac.tz).

The Faculty of Science Technology and Environmental studies offer bachelor degree in energy resources since 2016 where students from various angles of the country have been enrolled and studied the course. This course was designed to prepare students for their professional works in energy sector and physical environment. It is aimed to provide knowledge and understanding in aspects of

nature and practical experiences in energy resources. It also trains students in problem solving and entrepreneurship in energy fields, communication and computer skills. Graduates of this programme should be able to work as technologists and researchers in energy industry (Faculty of Science Handbook, 2021/2022). The programme contents cover among others; the topics related to renewable energy resources such as; solar energy, wind energy and other non-conventional energy resources like hydropower, biogas and geothermal energy (Table 1).

Table 1: Bachelor of Science (Energy Resources): Course Contents

Course Code	Course Title	Lecturer Hours	Total Credits	Core/ Elective
OFC 017:	Communication skills	35	10	Core
OCP 100:	Computer Studies	35	10	Core
OPH 111:	Fundamental Physics	105	30	Core
OPH 112:	Electromagnetism I and II	70	20	Core
OPH 211:	Statistical Thermodynamics	70	20	Core
OPH 212:	Mathematical Physics	70	20	Core
OPH 320:	Physics Practical's	70	10	Core
OMT 111:	Mathematical Analysis	70	20	Elective
OMT 114:	Probability and Statistics	70	20	Elective
OMT 223:	Computer Programming	35	10	Core
OPH 213:	Optics	70	20	Core
OPH 214:	Earth Physics	70	20	Core
OPH 311:	Fundamentals of Material Science	35	10	Core
OPH 312:	Physics of the Atom	70	20	Core
OPH 313:	Quantum Theory of Solids	70	20	Core
OPH 314:	Digital Electronics	70	20	Core
OMT 221	Numerical Methods	35	10	Elective
OPH 215	Analog Electronics	70	20	Elective
OPH 322	Solar Energy	70	20	Core
OPH 323	Environmental Physics	70	20	Core
OPH 324	Wind Energy	70	20	Core
OPH 325	Nuclear Energy	70	20	Core
OPH 326	Non-conversional Energies	70	20	Core
OPH 330	Energy Resources Practical	70	10	Core
OPH 331	Energy Resources Final Project	35	10	Core
OME 312	Entrepreneurship course	70	20	Elective
	TOTAL		450	

Source: FSTE Student Handbook, 2022

From Table 1, one can note that the Open University of Tanzania offers courses related to renewable energy technologies at undergraduate level. However, there is no postgraduate programme related to energy issues. The content covers general physics courses as required by professionals in energy sector as proposed by US Bureau of Statistics... Renewable energy courses are covered at level 3 of bachelor degree with a total of 100 credits out of 450 (22.2%) credits

offered under this programme. However, the small percentage of specific courses related to renewable energy is questionable on if will truly enable students to acquire enough skills required for energy expertise. The author is of the opinion that the university should consider for more inputs and specifying the course contents towards improving the programme.

The renewable energy sources covered under this program as per faculty handbook include solar energy, wind energy, nuclear energy and other non-conventional energy such as tidal and bioenergy with their associated practicals and project writing. Solar energy technologies are learned to create awareness on the use of thermal energy and solar electricity. It plays a great role in reduction of greenhouse effects and in environmental conservation. Through this programme graduates acquire knowledge and skills to design and install thermal energy and photovoltaic systems for different applications. Wind energy topic aims to provide knowledge on the current status and future prospects of wind energy technologies; technical aspects of the devices used to measure wind speed and wind direction. The topic also covers the fundamentals of wind turbines technology particularly wind rotors; theories behind it, designs and their performances and environmental benefits of wind energy and their related challenges. Students of this programme are exposed to the practical and research skills on energy technologies; entrepreneurship and business plan. The practicals are designed to equip learners with capabilities in the fields of small business enterprises and entrepreneurship development (FSTE Student Handbook, 2022).

The current bachelor degree in energy resources can only accommodate few candidates who qualify for taking the courses based on the small number of students with science background. This can be testified by the experience with the Open University of Tanzania, Figure 1 shows that over the last twenty-nine years of its operation (i.e. 1994 to 2021/22), the University has about 43.2% of enrolled students pursuing degrees in Education; 17.5% in Law; 13.8 % in Business Management; 17.0% in Arts and Social Sciences; and 8.5% in Sciences (OUT Facts and Figures; 2021/22).

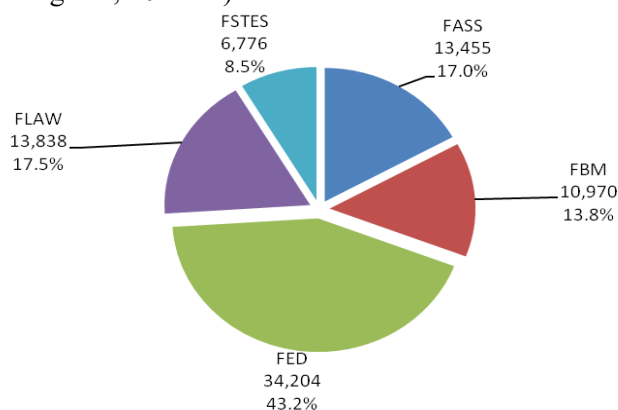


Figure 1: Percentage of Undergraduate Degree Students Admission in the Faculties
 Source: OUT Facts and Figures 2021/20022

From Figure 1 it shows that though the Open University gives room for entire population to access education only a small segment of a population is eligible to acquire specific courses related to energy, limited by having a science background. However, the potentiality of ODL still remains that the institution can still design for short courses for capacity building for energy professionals' particularly renewable energy. The Open University of Tanzania through Institute of Continuing Education has proposed some demand driven short courses that aims at building the capacity of human resource engaged in public and private sectors in Tanzania. These short courses target business community members, public institutions leaders, non-governmental organizations, Local Government Officials, and the general public. Others are the Professionals, Executives, and Mid-level managers who wish to develop particular skills or re-tooling through a lifelong learning paradigm. These short courses are expected to provide knowledge and skills related to; leadership and governance, project formulation and evaluation, and professional skills in data analysis and interpretation (OUT Facts and Figures, 2021/2022). In addition to technical skills energy professionals also needs to have some basic skills in project management, finance, marketing, and entrepreneurship, especially when starting or runs renewable energy business or consultancy. Currently the Open University of Tanzania offers the on-demand oriented short courses to cater for various professional needs and to qualify those in need. The professional courses currently available fall under various disciplines including, business studies, ICT, education, economic development and social sciences. However, there is nonexistence of skills-oriented courses related to renewable energy to cater for professional needs and in-job training for capacity building. The author concurs with several writers who suggested for the universities to consider programmes that meet the energy market demands

The Open University of Tanzania has invested in the use of ICT in its teaching and research. The Vice Chancellor of The Open University of Tanzania in RSP 2023-26 declares that OUT has recorded impressive achievement in various areas including the application of ICT in online teaching and learning. This is in line with other writers like Hoque *et al* (2022), Jennings and Lund (2011), Bhattacharya (2011) Bhattacharya in this study, who advocate the use of ICT in teaching and learning in today's digital era. The use of ICT in ODL system, open rooms for students to do independent study; this is possible through access to online materials where learners are enriched through different sources and exposed to the world.

The Open University of Tanzania has adopted a blended mode of delivery where both face-to-face, online interaction and E-learning is used. Moodle platform is the E-learning platform to access online forum discussions where instructors interact with students; announcements, assignments, and assessments are accessible to all registered stakeholders wherever they are. In addition to e-learning platforms OUT also operates through regional centres and coordination

centres at district levels. Currently Tests and exams are done at regional and district levels, but in near future planned to be done online, all these aims at bringing support services closer to clients. These services are accessible wherever a student is and not bound to geographical locations (OUT Prospectus 2022, www.out.ac.tz).

3.3 Challenges facing ODL System in offering Programmes

Various challenges have been addressed by institutions offering its programmes through online mode. OUT for instance, through difference staff meetings and teaching experiences through Moodle platforms, has tabled the following;

- Internet connectivity challenged by low bandwidth at HQ, which lowers its performance in the course of online classes. This is also associated to unreliable power supply particularly in rural settings. Additionally, is network infrastructure that requires constant upgrading to cater for dynamic needs of the IT industry. This can be a general challenge to online delivery modes, particularly in developing world.
- Negative perception of stakeholders on online learning affected by traditional paper-based learning particularly to aged learners who facing some difficulties in adopting digital technologies

Suggested Solutions include;

- Government to strengthen the capacity of power supply by promoting of the use of alternative energy technologies particularly renewable energy resources like solar and wind systems. Also improving fibre optic to increase bandwidth for maximizing the efficiency of internet connectivity.
- Stakeholders' awareness campaigns should be conducted to minimize negative perceptions on ODL systems
- OUT to consider offering of short courses which are more skills oriented to meet the market demand for energy sector

4.0 CONCLUSION AND RECOMMENDATIONS

The author conquers with other writers that renewable energy education is vital to meet the need for public awareness and knowledge, expertise in renewable energy technologies. Additionally, there is a need to look for training innovations and structure the programmes that meet the public at large. ODL mode of delivery, despite of some drawbacks noted in their programme contents, still stands a better chance to meet the need, as it is accessible and flexible to the larger population. ODL Institutions have the potentiality to expand its operations to a large geographical coverage hence research and consultancy activities to a larger population. It is recommended that; ODL institutions like OUT to conduct needs assessment and review their programmes regularly to ensure they meet the REE demands of the public at large. This will help to explore energy related problems, training needs, technical expertise requirements and recommend for

alternatives to policy makers to ensure appropriate policies and strengthen the infrastructures required for training needs.

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