

Role of Islamic economic and finance in renewable energy: some quotation from Quranic verses and Indonesia experiences

[Peranan ekonomi dan kewangan Islam dalam program-program tenaga boleh diperbaharui: beberapa petikan dari ayat-ayat al-Quran dan pengalaman Indonesia]

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ABSTRACT

This study aims to describe the role of Islamic economic and finance in renewable energy programs in Indonesia. This research is a qualitative descriptive research through library research and content analysis method. The results show that the role of Islamic economic and finance in renewable energy programs in Indonesia is realized in several forms. First, sharia financial sector can be one of the options for renewable energy investment financing instruments. Second, the utilization of renewable energy can be the supporter and spearhead of the halal industry. Third, in a religious social context, renewable energy financing can be done with the concept of *ta'awun* and *jāriyah* alms through crowd funding and waqf. In order to optimize the role of sharia economy and finance in renewable energy programs in Indonesia, several steps and activities that can be done include: (1) intensifying the campaign against the excellence of renewable energy; (2) providing easy access and renewable energy financing schemes; (3) conducting research and publication on renewable energy and potential collaboration with other industries in the halal value chain that can be perceived in Indonesia.

Kata Kunci:

Tenaga Boleh Diperbaharui, Ekonomi Islam, Kewangan Islam, Halal, Pembangunan Mapan, Ayat al-Quran

ABSTRAK

*Kajian ini bertujuan untuk menjelaskan peranan ekonomi dan kewangan Islam dalam program tenaga boleh diperbaharui di Indonesia. Penyelidikan ini adalah penyelidikan deskriptif kualitatif melalui penyelidikan perpustakaan dan kaedah analisis kandungan. Hasil kajian menunjukkan bahawa peranan ekonomi dan kewangan Islam dalam program tenaga boleh diperbaharui di Indonesia direalisasikan dalam pelbagai bentuk. Pertama, sektor kewangan syariah boleh menjadi salah satu pilihan instrumen pembiayaan pelaburan tenaga boleh diperbaharui. Kedua, penggunaan tenaga boleh diperbaharui boleh menjadi penyokong dan peneraju industri halal. Ketiga, dalam konteks sosial agama, pembiayaan tenaga boleh diperbaharui boleh dilakukan dengan konsep *ta'awun* dan *jāriyah* melalui pembiayaan orang ramai dan wakaf. Untuk mengoptimumkan peranan ekonomi syariah dan kewangan dalam*

program tenaga boleh diperbaharui di Indonesia, beberapa langkah dan aktiviti yang boleh dilakukan termasuk: (1) memperhebatkan kempen menentang kecemerlangan tenaga boleh diperbaharui; (2) menyediakan akses mudah dan skim pembiayaan tenaga boleh diperbaharui; (3) menjalankan penyelidikan dan penerbitan mengenai tenaga boleh diperbaharui dan potensi kerjasama dengan industri lain dalam rantaian nilai halal yang dapat dilihat di Indonesia.

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1. Introduction

Globally, the need for energy in human life is predicted to continue and increase. By the end of 2019, 84 percent of human life depends on energy derived from fossil fuels such as oil, gas and coal. Based on a report from the Statistical Review of World Energy 2019, it is known that the highest consumption of energy is currently dominated by oil, natural gas and coal at 193.03 exajoules, 141.45 exajoules, and 157.86 exajoules, respectively. Meanwhile, other energy sources such as hydroelectric, nuclear and new and renewable energy (*Energi Baru dan Terbarukan*, EBT) still took up a smaller share, amounting to 37.66, 24.92, and 28.98 exajoules, respectively (BPPLC, 2019). This data shows that renewable energy is an untapped source of energy to the maximum potential to support global and regional needs.

Energy consumption until 2040 is predicted to continue and increase where worldwide energy demand until 2040 will reach ranges from 13,000 Mtoe. The countries that dominate energy consumption are those of the Organisation for Economic Co-operation and Development (OECD). These countries consume 50 percent of the world's average energy. In general, it can be said that the highest consumption is found in the Asian region. This is a signal for various parties to develop industries that support renewable energy, especially in the Asia region (Bappenas, 2018).

In the "Renewable energy Outlook for ASEAN: a Remap Analysis" study report for the period of 2016, it said that the expected renewable energy target is 23 percent of the total energy supply by 2025. In order to achieve this target, each ASEAN member state is expected to achieve the national targets that have been set. The challenge faced by countries in the ASEAN region, including Indonesia, is how to implement the achievement of the 23 percent target by 2025 (IRENA, 2016). Indonesia is a country that has a uniqueness because it is rich in socio-economic, demographic, political and geographical resources. This will certainly have a profound impact on the country's development agenda. Its potential consists of 17,000 islands, a democratic system and has the 4th highest population in the world. In addition, Indonesia is the country with the largest Muslim population in the world. Coupled with a rich culture, Indonesia becomes a country that has a distinctive identity and characteristic compared to other countries. Its economic development contributed a lot to the reduction of poverty and placed it in the top 10 highest-income countries in the world (Bappenas, 2018).

The United Nations Environment Programme (UNEP) came up with the idea of a green economy in order to support efforts to meet renewable energy needs, among others, through reducing greenhouse gas emissions. The idea aims to provide a great opportunity how efforts to utilize the conception of green economy in order to support the implementation of development oriented to environmental and ecosystem aspects. UNEP states that the understanding of green economy is wider than Low-Carbon Economy (LCE) or Low-Fossil-Fuel Economy (LFFE), which is economic activity that provides minimal output to Green Houses Gas (GHG) emissions released (UNEP, 2011). The new economic model is based on ecological economics that addresses human dependence and the impacts of economic activity on climate change and global warming. Indicators of green economy implementation in an economy can be seen through several activities, such as increased public and private investment in the green sector: (i) an increase in the quantity and quality of jobs in the green sector, (ii) an increase in Gross Domestic Product (GDP) from the green sector, (iii) a decrease in energy/resource use per unit of production, (iv) a decrease in Carbon dioxide (CO₂) and pollution levels and (v) a decrease in consumption that produces a lot of waste (Fauzia, 2016).

There are two things that want to be achieved with the idea of green economy conception. First, the green economy tries to create an economic concept that not only considers macro-economic issues, especially investment in sectors that produce environmentally friendly products as well as the production of green



investment, but is also focused on how green investment contributes to job growth in areas related to green jobs. Second, the green economy is trying to set up a pro-poor green investment guide, or green investment that can encourage poverty alleviation. The main goal is to encourage policymakers to be able to get all levels of government and the private sector to participate to support increased green investment (Iskandar & Aqbar, 2019).

This economic model was created due to human tendencies that are more profit oriented than sustainable oriented. The current economic model encourages people to use all means regardless of environmental preservation for maximum benefit. The utilization and exploitation of natural resources that are not balanced by conservation efforts on behalf of human welfare seems to be starting to show a negative impact on the sustainability of the environment. This threatens not only the sustainability of the natural environment, but also the survival of man himself. The issues of energy limitations, global warming and climate change are just some of the many environmental issues that are so complex to note that are not only local but also global. Increasing awareness of environmental issues encourages countries in the world, including Indonesia, to think about efforts to balance the pace of the economy with efforts to conserve the natural environment and give birth to an economic paradigm that incorporates environmental aspects and social justice into it (Iskandar & Aqbar, 2019). In Indonesia, the concept of sustainable development has begun since the 1970s, but until now it still tends to focus on economic development, even on growth that tends to be short. The development model developed only drives economic development that tends to be extractive. Without denying the improvement of the quality of resources and the environment, but in general it can be said that efforts to improve the functioning of the environment and the sustainable utilization of natural resources are far from expected (Makmun, 2011).

The concept of green economy implementation is believed to be able to be a solution to the above problems and bring global life and civilization to be better, just, prosperous, and sustainable. This is actually in accordance with the value in the principles or concepts of Sharia Economics, especially from the point of view of *maqāṣid al-sharī'ah*. Islamic economic finance principles address the concept that human beings are commissioned as the stewards (*khilāfah*) of God on Earth and are responsible for maintaining the well-being of the environment. Hence, Islamic Financial Institutions (IFIs) should not overlook their trust (*amānah*) and responsibility (*mas'ūliyyah*), and this should be reflected in their investments and financial activities. IFI responsibilities primarily involve working to fulfil a collective social and religious obligation (*fard al-kifāyah*) for their various stakeholder groups. Second, IFIs have a social responsibility to effectively and efficiently mobilise resources for the benefit of the community. Islam, and in particular *sharī'ah*, which incorporates Islamic financial jurisprudence, or *fiqh al-mu'āmalah*, strongly emphasises the ethical, environmental and social impacts on stakeholders (Iskandar, Possumah, & Aqbar, 2020). In the Quran, the primary source of Islamic law, there are around five hundred verses which describe and praise the environment and moreover urge people to look after it (Bakar, 2007). The teachings of the Prophet Muhammad (peace be upon him), known as the hadith, another primary source of Islamic law, elaborate on governance, ethics, the environment and waste management, besides kindness to human beings and all other creations (Kamali, 2012).

In terminology, *maqāṣid al-sharī'ah* is the intention of Allah as the maker of sharia to provide benefits (*maṣlahah*) to man, namely by fulfilling the needs of *darūriyyah* (primary), *ḥājjiyyah* (secondary), and *taḥsīniyyah* (tertiary) so that people can live in goodness and can be good servants of God (Fauzia, 2016). Especially for the *darūriyyah* category, the scholars then divided it in more detail into *al-kulliyāt al-khamsah*, namely *hiḥẓ al-dīn* (religious guardian), *hiḥẓ al-naḥs* (guardian of the soul), *hiḥẓ al-'aql* (guardian of reason), *hiḥẓ al-nasl* (custody of descendants), and *hiḥẓ al-māl* (custody of property). *Darūriyyah* is a condition in which when man cannot get his needs, then man will be damaged and not prosperous. This is different from *ḥājjiyyah* and *taḥsīniyyah*, where *ḥājjiyyah* is a condition in which a person when he does not get his needs, then the condition will not threaten his life. *Taḥsīniyyah* is the fulfilment of needs whose context is only to facilitate and increase the value of human life. The scholars of the past agreed that sharia was revealed to build the benefit of mankind in this world and the Hereafter. Sharia is revealed to be carried out in accordance with its *maqāṣid* so that a just life can be established and social welfare can be realized. This is the spirit that animates the science and practice of Sharia economics (Iskandar & Aqbar, 2019).

Based on the description of the urgency of the availability of renewable energy, green economy and implementation of Sharia economy and finance that actually have a spirit that is in line with the efforts of the global community in supporting the energy program, the author is interested to see more about how the role of Islamic economic and financial practices in Indonesia in renewable energy programs in order to realize sustainable development. Therefore, this research aims to describe the economic and financial role in renewable energy programs in Indonesia in order to realize sustainable development. Based on the objectives to be achieved, this study falls into the category of descriptive research that aims to describe a particular situation or

symptom in detail. In terms of approach, this study uses qualitative approach through library study method and content analysis. The data source used in the form of secondary data obtained from research results, articles and reference books that discuss the same topic, especially in the *Document of Master Plan of Sharia Economy Indonesia*.

2. Renewable Energy in Islamic Context

The Quran is a complete guideline covering all aspects of life, whether spiritual, intellectual, political, social, economic or energy. The Quran is a book that contains a review of the concept of energy or renewable energy sources that has been conceptually and simply illustrated in several verses of the Quran. The Quran has provided simple concepts and illustrations about renewable energy sources that can be utilized by humans, energy conservation, and energy enrichment. This renewable energy policy can be proven scientifically with the implementation of scientific Quranic terms about renewable energy sources such as water, geothermal, ocean, vegetation, and wind. The policy on energy conservation through energy saving becomes a religious obligation for every person, institution, and government because to meet the needs of consumers, maintain the survival of the community, and preserve the environment (Jaelani, Firdaus, & Jumena, 2017).

Sources of energy and renewable energy are widely mentioned in the Quran. Several verses of the Quran describing various sources of energy and renewable energy are mentioned by Hasanuzzaman (1999) and Jaelani (2017), such as:

- i. *al-An'ām* [6]: 95 concerning the grain of herbs and seeds of fruits:

﴿إِنَّ اللَّهَ فَالِقُ الْحَبِّ وَالنَّوَىٰ ۗ يُخْرِجُ الْحَيَّ مِنَ الْمَيِّتِ وَيُخْرِجُ الْمَيِّتَ مِنَ الْحَيِّ ۗ ذَٰلِكُمْ اللَّهُ فَالِقُ تُوْفُكُونَ ۗ﴾

Translation:

"It is God Who splits the grain and the seed. He brings the living from the dead, and He brings the dead from the living. Such is God. So how could you deviate?"

- ii. *al-Hijr* [15]: 22 concerning wind, marriage of crops, rain, and water for drinking:

﴿وَأَرْسَلْنَا الرِّيْحَ لَوَاقِحَ فَأَنْزَلْنَا مِنَ السَّمَاءِ مَاءً فَاسْقَيْنَاكُمُوهُ وَمَا أَنْتُمْ لَهُ بِخَازِنِينَ ۗ﴾

Translation:

"And we send the fertilizing winds; and send down water from the sky, and give it to you to drink, and you are not the ones who store it."

- iii. *al-Nahl* [16]: 11-13 concerning rainwater, growing crops, night and day, sun and moon, stars, earth for man to manage:

﴿يُثْبِتُ لَكُمْ بِهِ الزَّرْعَ وَالزَّيْتُونَ وَالنَّخِيلَ وَالْأَعْنَابَ وَمِنْ كُلِّ الثَّمَرَاتِ ۗ إِنَّ فِي ذَٰلِكَ لَآيَةً لِّقَوْمٍ يَتَفَكَّرُونَ ۗ﴾
 ﴿وَسَخَّرَ لَكُمْ الَّيْلَ وَالنَّهَارَ وَالشَّمْسَ وَالْقَمَرَ ۗ وَالنُّجُومَ مَسخَرَاتٌ بِأَمْرِ رَبِّهِ ۗ إِنَّ فِي ذَٰلِكَ لَآيَاتٍ لِّقَوْمٍ يَعْقِلُونَ ۗ﴾
 ﴿ذَرَأَ لَكُمْ فِي الْأَرْضِ مُخْتَلِفًا أَلْوَانُهُ ۗ إِنَّ فِي ذَٰلِكَ لَآيَةً لِّقَوْمٍ يَذَّكَّرُونَ ۗ﴾

Translation:

"And He produces for you grains with it, and olives, and date-palms, and grapes, and all kinds of fruits. Surely in that is a sign for people who think. And He regulated for you the night and the day; and the sun, and the moon, and the stars are disposed by His command. Surely in that are signs for people who ponder. And whatsoever He created for you on earth is of diverse colors. Surely in that is a sign for people who are mindful."

iv. *al-Mu'minūn* [23]: 21-22 concerning farm animals, milk, consumption, animals and boats for transportation:

وَإِنَّ لَكُمْ فِي الْأَنْعَامِ لَعِبْرَةً تُمْسِقُكُمْ مِمَّا فِي بُطُونِهَا وَلَكُمْ فِيهَا مَنَافِعُ كَثِيرَةٌ وَمِنْهَا تَأْكُلُونَ ﴿٢١﴾ وَعَلَيْهَا وَعَلَى الْفُلْكِ تُحْمَلُونَ ﴿٢٢﴾

Translation:

“And there is a lesson for you in livestock: We give you to drink from what is in their bellies, and you have many benefits in them, and from them you eat. And on them, and on the ships, you are transported.”

v. *al-Rūm* [30]: 46 concerning the wind as a bearer of glad tidings, the ship sailed in search of a livelihood:

وَمِنْ آيَاتِهِ أَنْ يُرْسِلَ الرِّيحَ مُبَشِّرَاتٍ وَلِيُذِيقَكُمْ مِنْ رَحْمَتِهِ وَلِتَجْرِيَ الْفُلُكُ بِأَمْرِهِ وَلِتَبْتَغُوا مِنْ فَضْلِهِ وَلِعَلَّكُمْ تَشْكُرُونَ ﴿٤٦﴾

Translation:

“And of His signs is that He sends the winds bearing good news, to give you a taste of His mercy, and so that the ships may sail by His command, and so that you may seek of His bounty, and so that you may give thanks.”

vi. *Saba'* [34]: 10 concerning iron, armour:

﴿١٠﴾ وَلَقَدْ آتَيْنَا دَاوُدَ مِمَّا فُضِّلَ بِهِ أَجْبَالَ أُورِيبِ مَعَهُ وَالطَّيْرَ وَالنَّارَ لَهُ الْحَدِيدَ ﴿١٠﴾

Translation:

“We bestowed upon David favor from Us: ‘O mountains, and birds: echo with him’. And We softened iron for him.”

vii. *Saba'* [34]: 12 concerning wind and transportation:

وَلَسَلِيمَنَّ الرِّيحُ عُذُوهَا شَهْرٌ وَرَوَاحُهَا شَهْرٌ وَأَسَلْنَا لَهُ عَيْنَ الْقِطْرِ وَمِنَ الْجِبِّ مَنْ يَعْمَلُ بَيْنَ يَدَيْهِ بِإِذْنِ رَبِّهِ وَمَنْ يَزِغْ مِنْهُمْ عَنْ أَمْرِنَا نُذِقْهُ مِنْ عَذَابِ السَّعِيرِ ﴿١٢﴾

Translation:

“And for Solomon the wind—its outward journey was one month, and its return journey was one month. And We made a spring of tar flow for him. And there were sprites that worked under him, by the leave of his Lord. But whoever of them swerved from Our command, We make him taste of the punishment of the Inferno.”

viii. *al-Hadīd* [57]: 25 concerning iron and their utilization:

لَقَدْ أَرْسَلْنَا رُسُلَنَا بِالْبَيِّنَاتِ وَأَنْزَلْنَا مَعَهُمُ الْكِتَابَ وَالْمِيزَانَ لِيُقِيمُوا النَّاسَ بِالْقِسْطِ وَأَنْزَلْنَا الْحَدِيدَ فِيهِ بَأْسٌ شَدِيدٌ وَمَنْفَعٌ لِلنَّاسِ وَلِيَعْلَمَ اللَّهُ مَنْ يَنْصُرُهُ وَرُسُلَهُ بِالْغَيْبِ إِنَّ اللَّهَ قَوِيٌّ عَزِيزٌ ﴿٢٥﴾

Translation:

“We sent Our messengers with the clear proofs, and We sent down with them the Book and the Balance, that humanity may uphold justice. And We sent down iron, in which is violent force, and benefits for humanity. That God may know who supports Him and His messengers invisibly. God is Strong and Powerful.”

Allah created a source of energy for mankind by subjugating nature and its contents. Scientifically, soul, water and vegetation go through a process preceded by the presence of energy sources derived from rainwater (al-Zarkashī, 1984). This water can fertilize the soil and grow crops (such as dates and grapes) some of it through the wind so that certain plants are pollinated (Ramli, Murad, & Husin, 2014). Another source of energy in the form of springs used by humans in their lives.

Scientific cues in some of the above verses include a source of vegetable energy derived from plants can be used for renewable energy sources in lieu of fuel. Therefore, renewable energy sources are environmentally friendly sources of energy that do not pollute the environment and do not contribute to climate change and global warming, because the energy obtained comes from sustainable natural processes, such as sunlight, wind, water, biofuels, and geothermal. This confirms that energy sources are available in Indonesia, do not harm the environment, and are the main reasons EBT is strongly related to environmental and ecological issues (Suprayogi, 2016).

In Islamic economics, the philosophical approach to energy from the perspective of the Quran can be traced from three interrelated aspects of energy economy, namely the duty of man as the caliph of God in prospering the earth, the environment as a place of human life, and human needs for energy. In the Quran, man is the most potential being so that Allah delegates the main task as caliph to man to manage and prosper the earth. Allah says in *al-Baqarah* [2]: 29-32:

هُوَ الَّذِي خَلَقَ لَكُمْ مَّا فِي الْأَرْضِ جَمِيعًا ثُمَّ اسْتَوَىٰ إِلَى السَّمَاءِ فَسَوَّاهُنَّ سَبْعَ سَمَوَاتٍ وَهُوَ بِكُلِّ شَيْءٍ عَلِيمٌ ﴿٢٩﴾
 وَإِذْ قَالَ رَبُّكَ لِلْمَلٰٓئِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً قَالُوا أَتَجْعَلُ فِيهَا مَن يُفْسِدُ فِيهَا وَيَسْفِكُ الدِّمَآءَ وَنَحْنُ نُسَبِّحُ بِحَمْدِكَ وَنُقَدِّسُ لَكَ قَالَ إِنِّي أَعْلَمُ مَا لَا تَعْلَمُونَ ﴿٣٠﴾ وَعَلَّمَ آدَمَ الْأَسْمَاءَ كُلَّهَا ثُمَّ عَرَضَهُمْ عَلَى الْمَلٰٓئِكَةِ فَقَالَ أَنبِئْهُ رُبِّي بِأَسْمَاءِ هٰؤُلَاءِ إِن كُنْتُمْ صٰدِقِينَ ﴿٣١﴾ قَالُوا سُبْحٰنَكَ لَا عِلْمَ لَنَا بِهٰذَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ ﴿٣٢﴾

Translation:

“It is He who created for you everything on earth, then turned to the heaven, and made them seven heavens. And He is aware of all things. When your Lord said to the angels, “I am placing a successor on earth.” They said, “Will You place in it someone who will cause corruption in it and shed blood, while we declare Your praises and sanctify You?” He said, “I know what you do not know.” And He taught Adam the names, all of them; then he presented them to the angels, and said, “Tell Me the names of these, if you are sincere.” They said, “Glory be to You! We have no knowledge except what You have taught us. It is you who are the Knowledgeable, the Wise.”

And in *Hūd* [11]: 61-62:

وَإِلَى ثَمُودَ أَخَاهُمْ صٰلِحًا قَالَ يٰقَوْمِ اعْبُدُوا اللَّهَ مَا لَكُمْ مِنِّ إِلٰهٍ غَيْرُهُ هُوَ أَنشَأَكُم مِّنَ الْأَرْضِ وَأَسْتَعْمَرَكُمْ فِيهَا فَاسْتَغْفِرُوهُ ثُمَّ تَوَبُوا إِلَيْهِ إِنَّ رَبِّي قَرِيبٌ مُّجِيبٌ ﴿٦١﴾ قَالُوا يٰصٰلِحُ قَدْ كُنْتَ فِينَا مَرْجُوًّا قَبْلَ هٰذَا أَتَنْهَانَا أَن نَّعْبُدَ مَا يَعْبُدُ آبَاؤُنَا وَإِنَّا لَفِي شَكٍّ مِّمَّا تَدْعُونَا إِلَيْهِ مُرِيبٌ ﴿٦٢﴾

Translation:

“And to Thamood, their brother Saleh. He said, “O my people, worship God, you have no god other than Him. He initiated you from the earth, and settled you in it. So seek His forgiveness, and repent to Him. My Lord is Near and Responsive.” They said, “O Saleh, we had hopes in you before this. Are you trying to prevent us from worshipping what our parents’ worship? We are in serious doubt regarding what you are calling us to.”

Man is given the potential of reason that is able to create technology to manage the earth and natural resources, as God has created the heavens, earth, mountains, water, and plants, so that man can enjoy all these gifts to meet the needs of life and live his life, including energy needs. Allah says in *al-Anbiyā'* [21]: 30-31:

أَوَلَمْ يَرَ الَّذِينَ كَفَرُوا أَنَّ السَّمَوَاتِ وَالْأَرْضَ كَانَتَا رَتْقًا فَفَتَقْنَاهُمَا وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ أَفَلَا يُؤْمِنُونَ ﴿٣٠﴾ وَجَعَلْنَا فِي الْأَرْضِ رَوَاسِيَ أَنْ تَمِيدَ بِهِمْ وَجَعَلْنَا فِيهَا فِجَاجًا سُبُلًا لَعَلَّهُمْ يَهْتَدُونَ ﴿٣١﴾

Translation:

“Do the disbelievers not see that the heavens and the earth were one mass, and We tore them apart? And We made from water every living thing. Will they not believe? And We placed on earth stabilizers, lest it sways with them, and We placed therein signposts and passages, that they may be guided.”

Therefore, everything created by God becomes part of the needs of human life, but man is given the responsibility as a religious obligation to manage well, do not do damage on earth by exploiting the harm of man and the environment, and act efficiently in the utilization of energy sources (Ibn Hayyān, 1993). In other words, the task of man in prospering the earth is a religious obligation, including the utilization of energy for human welfare and developing renewable energy. Allah says in *al-Haj* [28] verse 77:

يَا أَيُّهَا الَّذِينَ آمَنُوا ارْكَعُوا وَاسْجُدُوا وَعِبُدُوا رَبَّكُمْ وَأَفْعَلُوا الْخَيْرَ لَعَلَّكُمْ تُفْلِحُونَ ﴿٧٧﴾

Translation:

“O you who believe! Kneel, and prostrate, and worship your Lord, and do good deeds, so that you may succeed.”

And in *al-An‘ām* [6] verse 141:

﴿ وَهُوَ الَّذِي أَنْشَأَ جَنَّاتٍ مَعْرُوشَاتٍ وَغَيْرَ مَعْرُوشَاتٍ وَالنَّخْلَ وَالزَّرْعَ مُخْتَلِفًا أَكْلُهُ وَالزَّيْتُونَ وَالرُّمَانَ مُتَشَابِهًا وَغَيْرَ مُتَشَابِهٍ كُلًّا مِنْ ثَمَرِهِ إِذَا أَثْمَرَ وَعَاءَتْهُ حَقُّهُ يَوْمَ حَصَادِهِ وَلَا تُسْرِفُوا إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ ﴿١٤١﴾

Translation:

“It is He who produces gardens, both cultivated and wild, and date-palms, and crops of diverse tastes, and olives and pomegranates, similar and dissimilar. Eat of its fruit when it yields, and give its due on the day of its harvest, and do not waste. He does not love the wasteful.”

Vaghefi et al. (2015) stated that Islamic views on natural resources are based on the Quran. In the Quran mentioned several important principles on environmental conservation, as well as assessing environmental damage and mismanagement of natural resources as evil deeds. Allah says in *al-A‘rāf* [7] verse 31:

﴿ يَا بَنِي آدَمَ خُذُوا زِينَتَكُمْ عِنْدَ كُلِّ مَسْجِدٍ وَكُلُوا وَاشْرَبُوا وَلَا تُسْرِفُوا إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ ﴿٣١﴾

Translation:

“O Children of Adam! Dress properly at every place of worship, and eat and drink, but do not be excessive. He does not love the excessive.”

Thus, energy conservation from abuse and exploitation through energy saving includes religious obligations. Similarly, if viewed based on the aspect of *maqāṣid al-sharī‘ah* (shariah objectives) namely in the aspect of maintenance of human life, then the development of renewable energy aimed at human survival, the

need for energy consumption, community welfare, and avoiding the energy crisis, then the development of renewable energy is religiously mandatory (Jaelani, 2015).

In the context of EBT, the Prophet (pbuh) said that “Muslims have common share in three (things), namely grass, water and fire.” (Abu Dawud, Book 23, 3470). In the current context, the hadith leads us to jointly safeguard water, food and energy. The context is very much in line with the concept of sustainable development to deal with the increasing world population, urbanization, as well as dietary changes and economic growth (MUI-LPLHSDA, 2021).

Environmental damage is due to the concept of capillary economics that *ribāwī* with the concept of “time value of money”, ie money received today is more valuable than money received in the future. This concept results in extractive economic activities, where all-natural resources must be exploited to make the most of their profits. This certainly causes great environmental damage because nature has a limited carrying capacity. On the other hand, productivity and economic sustainability depend heavily on the continuity of reciprocal interaction between people and balanced ecosystem services. Therefore, the concept of sustainable finance implemented by the Financial Services Authority (*Otoritas Jasa Keuangan*, OJK) that requires all companies to allocate environmental impact costs based on Financial Services Authority Regulation No. 51/POJK.03/2017 concerning Sustainable Financial Implementation is very appropriate, because the essence of the economy is to meet the needs of human life depending on the maintenance of the function of balanced ecosystem services (Jaelani, 2015). Allah has commanded us to guard the earth in search of our sustenance, as He says in Surah *al-Baqarah* [2] verse 60:

﴿وَإِذِ اسْتَسْقَىٰ مُوسَىٰ لِقَوْمِهِ فَقُلْنَا اضْرِبْ بِعَصَاكَ الْحَجَرَ فَانْفَجَرَتْ مِنْهُ اثْنَتَا عَشْرَةَ عَيْنًا قَدْ عَلِمَ كُلُّ أُنَاسٍ مَّشْرِبَهُمْ كَلُوا وَاشْرَبُوا مِنْ رِزْقِ اللَّهِ وَلَا تَعْثَوْا فِي الْأَرْضِ مُفْسِدِينَ ﴿٦٠﴾

Translation:

“And recall when Moses prayed for water for his people. We said, “Strike the rock with your staff.” Thereupon twelve springs gushed out from it, and each tribe recognized its drinking-place. “Eat and drink from God’s provision, and do not corrupt the earth with disobedience.”

3. Role of Islamic Economic and Finance in Renewable Energy

The value chain of renewable energy starts from the willingness of natural resources to the final utilization of the energy itself. Its utilization for various sectors, such as household, transportation, industrial, and commercial needs. There is also a primary industry that consists of upstream (lifting from its original source) and downstream (processing into energy products). In its development, the renewable energy industry can be both an opportunity and a challenge. The focus is on market aspects, Human Resources (HR), technology, regulation, financing and research & development (R&D).

Indonesia’s advantage is to have abundant resources in implementing renewable energy that can be provided locally. Various policies on a regional and national scale are becoming supporting aspects. In addition, the potential availability of renewable energy sources in Indonesia is diverse and large enough that has been supported by technology for the development of renewable energy that is relatively easy to learn to implement. Although it basically has advantages and supporting aspects, the development of renewable energy in Indonesia is still not optimal. One of the causes is that the development of renewable energy requires high investment costs and the selling price of products has not been competitive. Renewable energy distribution still has limited market access and cannot yet be mass-produced. In addition, currently the development of renewable energy has not been supported by adequate infrastructure. Another thing to note is the lack of effective synergy from policyholders to execute the potential for renewable energy development owned by Indonesia. In fact, with the development of renewable energy, dependence on fossil energy can be reduced. The sector has the potential to absorb a lot of labor that could lower the unemployment rate. The development of renewable energy has the potential to increase the added value of energy sources and open opportunities for business scale expansion. In terms of regional autonomy, renewable energy opens up regional opportunities to have autonomy of energy sources (Bappenas, 2018).

In order to support the achievement of Indonesia’s vision of an independent, prosperous and civilized Indonesia by becoming the world’s leading Islamic economic and financial center, renewable energy clusters can actually be a catalyst for the strengthening of halal value chains. Its contribution is seen in improving

economic independence through energy self-sufficiency. The scheme of the role of sharia economy and finance in renewable energy programs as shown in Figure 1.

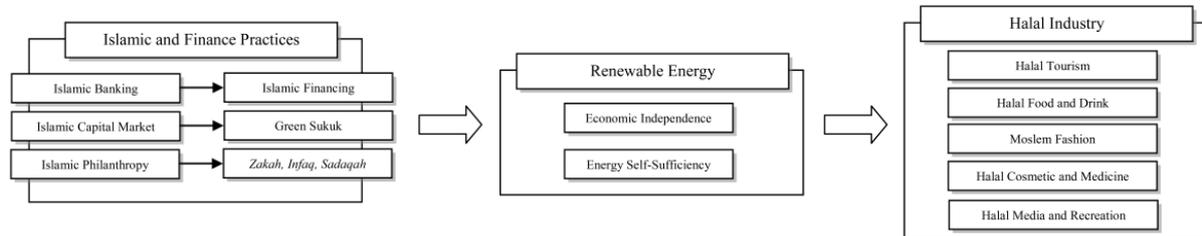


Figure 1: Scheme of Role of Islamic Economic and Finance in Renewable Energy

Sharia financial sector can be one solution to the problem of lack of availability of financing instruments in accordance with EBT investment needs. Through various sharia-based financing with various schemes, the Ecosystem of Sharia financial industry can contribute to be one of the supporting factors in achieving EBT targets that have been set for 2025 and 2050. In developing renewable energy investments, the government and private sector divide their share in investment. Sources of renewable energy funding in Indonesia include the Ministry, State Electricity Company (*Perusahaan Listrik Negara*, PLN), Regional Budget (*Anggaran Pendapatan dan Belanja Daerah*, APBD), grants, and green sukuk bonds. Until 2018, funding for EBT is channeled through the Ministry of Energy and Mineral Resources (*Energi dan Sumber Daya Mineral*, ESDM) and PLN. Another funding scheme is through government cooperation and business entities with independent power producers. Investment through apbd (Special Allocation Fund/DAK) scheme and investment by other ministries. Grants as one of the sources of non-apbn funding, conducted hammering other funding schemes obtained from foreign grants such as MCA-Indonesia, Green Climate Fund, ESP3, USAID-ICED, and others (Bappenas, 2018).

The need for high enough funding for the development of renewable energy is the potential for Sharia finance to be able to contribute through its financial products. One of the choices of Islamic financial instruments that can be utilized is sukuk. Projects related to sustainable energy and development can be funded by sukuk (Morea & Poggi, 2016). These include clean energy, mass transportation, water conservation, forestry, and low-carbon technology. Sukuk is a new term introduced as a substitute for the word Islamic bonds. In terminology, sukuk is a plural form of the Arabic word “*sakk*” meaning certificate or proof of ownership. Sukuk became known in 2002 in Indonesia with the issuance of corporate sukuk by Indosat with a value of Rp 300 billion using the *muḍārabah* agreement (Bappenas, 2018).

The Government of Indonesia through the Ministry of Finance issued the state sukuk as an instrument to finance infrastructure. For ten years since its debut, the current government has routinely published state sukuk at both national and international levels. Some of the series that have been published in the market are retail sukuk, international state sukuk (*Sukuk Negara Internasional*, SNI), and *haji* fund sukuk. The rapid development of instrument type innovation also occurred in the issuance of state sukuk after 2010. In 2012, the government conducted regular auctions of pbs and SPN-S series state sukuk, additional state sukuk auctions (green shoe option), and SNI with Islamic GMTN format. Furthermore, in 2013, the government first began publishing project-based sukuk under the name project based sukuk (PBS). In 2018, the government then published green sukuk as a contribution to the Sustainable Development Goals (SDGs) for the first time. This type of sukuk is published by the Indonesian government to help fund climate change. The government issued the first green sukuk in the global market in 2018 with a total of USD1.25 billion with underlying green projects in ministries/institutions. Indonesia is listed as the first country to issue Sovereign Green Sukuk and Sovereign Retail Green Sukuk in the world. The issuance of green sukuk received 10 international awards, among others from IFR Asia, Islamic Finance News, Finance Asia, Euromoney, The Triple A, and Climate Bond Initiative. Indonesia's excellent reputation for the issuance of Green Sukuk (Kementerian Keuangan, 2021).

Indications of the increasing role of state sukuk in state budget financing can be seen from the increase in the number of state sukuk issuances from year to year. Based on data from the Directorate of Sharia Financing Directorate General of Financing and Risk Management (*Direktorat Jenderal Pengelolaan Pembiayaan dan Risiko*, DJPPR), the issuance of state sukuk has increased significantly from the first issued in 2008 which only amounted to Rp 4.7 trillion until issuance in 2018 which reached Rp 192.49 trillion. After the issuance of green sukuk on February 22, 2018 with a five-year value of USD 1.75 billion and listed on the

Singapore and NASDAQ Dubai exchanges, the total accumulation of state sukuk issuance since 2008-2018 has reached Rp 950.26 trillion (Kementerian Keuangan, 2021).

In addition, the role of the Islamic financial sector can be done by developing a more creative Islamic financial structure. It can leverage the project's underlying assets; the increasing number of sharia and conventional banks that are now willing to lend on Islamic financial grounds; willingness of credit export agents to work with sharia financing structures and lenders; and the preference of some private sector sponsors to obtain financing on the basis of Sharia finance. Alternative financing for renewable energy that can be done through sharia financial institutions through financing schemes has been done in banking institutions by providing rooftop solar panel financing. For example, in BPRS Lantabur Tebuireng East Java. This financing agreement uses the principle of buying and selling (*murābahah*). The bank buys a package of rooftop solar electricity products, then sells them to customers with a sale price agreement coupled with sales margin to customers in installments (Bappenas, 2018).

Similarly, in Bank Negara Indonesia (BNI) Syariah, it signed a working capital financing agreement with P.T. Medco Power Indonesia amounting to Rp 400 billion. Working capital financing is intended for corporate financing used for additional working capital and operational costs of Medco Power. Medco Power Indonesia has been known as a leading company in the renewable electricity industry such as geothermal power plants, mini hydro and solar power. The signing of this Financing Ceiling Agreement is a form of BNI Syariah's support to the Indonesian government's program in the use of Renewable Energy. BNI Syariah's support for the use of Renewable Energy is in accordance with the mandate of the Financial Services Authority Regulation No. 51/POJK.03/2017 dated July 18, 2017 concerning the Implementation of Sustainable Finance. P.T. Medco Power Indonesia, Susilawati Nasution said that the company is currently building a sizable renewable energy project including ijen pltp with a capacity of 110 MW that will be fully operational (Commercial Operation Date) in 2023. In addition, the company also has a Gas and Steam Power Plant (*Pembangkit Listrik Tenaga Gas dan Uap*, PLTGU) in Riau with a capacity of 275 MW. This year, BNI Syariah carries the strategic theme "Embracing New Opportunities", where banks are ready to seize new opportunities and become better partners for all stakeholders, one of which is in the field of renewable energy. This is also in accordance with the value proposition of BNI Syariah namely Hasanah Banking Partner, where BNI Syariah is committed to advancing the economy through support to Medco Power Indonesia in the development of Renewable Energy in Indonesia. As of June 2020, BNI Syariah's productive financing portfolio reached Rp 13.6 trillion. The majority of BNI Syariah's commercial financing is channeled to several industrial sectors, including construction, electricity, water gas, processing industry, trade, hotels and restaurants, as well as business services (Keuangan-Kontan.Co.Id, 2021).

The role of sharia economy and finance in the renewable energy sector has also been further carried out by the National Zakat Agency (*Badan Amil Zakat Nasional*, BAZNAS). The agency is committed to supporting appropriate mitigation actions in the energy sector (MTRE3). In July 2017, BAZNAS and the Ministry of Energy and Mineral Resources signed a symbolic donation of USD 350,000 from BAZNAS to support the Sustainable Development Goals (SDGs) program. In September 2020, BAZNAS has just inaugurated a Micro Hydro Power Plant (*Pembangkit Listrik Tenaga Mikrohidro*, PLTMH) in Lubuk Bangkar Village, Batang Asai District, Sarolangun Regency, Jambi Province. The program provides electricity access to 4,448 people from 803 households (Bappenas, 2018).

This is a target that needs to be achieved for the renewable energy sector to synergize with the Islamic financial sector as an alternative source of financing in supporting the achievement of renewable energy fulfillment targets in Indonesia. Experts in Islamic financial institutions and other investors who understand the renewable energy industry are needed to assess the investment risks of the renewable energy sector. Certainly, with high capital expenditure value, not large margins, and a long financing period. Furthermore, with the optimal utilization of EBT in Indonesia, the energy results become a supporter for the spearhead of the halal industry, including: tourism, food and beverage industry, Muslim fashion, pharmaceuticals and cosmetics, as well as media and recreation. Especially in the halal tourism industry, Indonesia can synergize EBT production sites into one of the green tourism-based tourism destinations. As previously stated, one of the largest energy users is from the industrial sector. Synergy of renewable energy utilization by sectors in the halal industry ecosystem can support long-term sustainable economic improvement. Renewable energy can be utilized among others by halal industries such as: halal food and beverages, Muslim fashion, halal tourism, pharmaceuticals and halal cosmetics and halal media and recreation (Bappenas, 2018).

For example, some European countries such as Germany and the UK have integrated the renewable energy sector with tourism. This is known as green tourism. Germany through its *Energiewende* program has implemented the integration of the renewable energy sector with its tourism. Although there are some who

object to the *Energiewende* program, but in addition to being able to provide renewable energy in Germany, the program is able to expand its function as a tourism location without disrupting its main function to produce energy. Undeniably, the addition of functions from renewable energy sources will increase the economic contribution in the country. Another model is in the UK as *Gladwingsfarm*. This tourist attraction has received several awards, one of which is in the category of green tourism. Eco-friendly tourism in it has a similar concept to *Energiewende*. The policies implemented by this tourist attraction are reduction of carbon footprint, solar tracker panels and biomass boilers. The advantage of *Gladwingsfarm* is the more complete facilities so that the activities offered to visitors are more diverse to promote renewable energy and green tourism (Bappenas, 2018).

EBT synergy with other industries occurs in Germany and the UK which has utilized EBT for its tourism industry. Currently this has not been done in Indonesia. Based on the potential in every region in Indonesia, one that can be synergized is to see the potential of EBT development with halal tourism potential in each region. In Indonesia, the Ministry of Tourism has made halal tourist destinations superior. The 10 tourist destinations include Riau Islands and Sumatra, Bandung, Jakarta, Yogyakarta, Surabaya, Bali-Nusa Tenggara Islands, Kalimantan, Sulawesi, and Maluku and Papua Islands. One of the leading halal tourism potentials in the Great Bali area is the West Nusa Tenggara (*Nusa Tenggara Barat*, NTB) region. The region has the energy potential of the ocean and solar system. The potential of marine energy and solar system energy in the region can be one of the potential synergies with sustainable tourism (halal tourism) as already done by countries in Europe. Research and collaboration are needed between policyholders and those who can synergize between the EBT sector and the halal tourism sector (Bappenas, 2018).

In the context of socially religious EBT financing, Islam teaches the concept of *ta'awun*, namely mutual assistance, helping with fellow human beings, such as the command of Allah in surah *al-Mā'idah* [5] verse 2. In this case, the profit obtained is the alms of *jāriyah* whose reward will continue to flow (Patahuddin et al, 2020). This program can be done through crowd funding to mobilize Indonesia's waqf potential of Rp. 60 trillion for social programs as well as community empowerment, especially in the aspect of environmental protection. For example, waqf installation of solar panels in Salman ITB Mosque and biogas reactor waqf has been conducted for boarding schools and Azzikra Mosque in Sentul, Bogor. The construction of this biogas facility is not only for energy, but also for the treatment of liquid waste from mosques that were previously flowed into the Cikeas river which of course is prohibited in Islamic law because it causes harm. Currently several financing schemes through *waqf* funds are being intensively developed by the Islamic banking industry and the Indonesian Ulama Council (*Majelis Ulama Indonesia*, MUI) (MUI-LPLHSDA, 2021). In order to optimize the synergy between renewable energy programs and sharia economy, some of the steps and Quick Wins programs that can be done are:

First, the campaign against the superiority of renewable energy to achieve national energy self-sufficiency. One of the problems in the renewable energy sector is the lack of awareness or support and public concern for renewable energy. Then society still relies heavily on fossil energy. What can be done to address this problem is to campaign or socialize the advantages of renewable energy compared to fossils, and increase public awareness of the potential of renewable energy in achieving energy self-sufficiency. This is also in line with the main strategy in the framework of sharia economic development masterplan in Indonesia as the center of the world Sharia economy, namely the national campaign of halal lifestyle.

Second, the creation of easy access and attractive financing schemes to support renewable energy. Another problem faced by the renewable energy sector is the difficulty of obtaining investment and financing for its development projects. The sector needs considerable funds. This is very much related to people's perception and understanding of renewable energy itself which is still low. Their perception is still not very concerned and aware of the environment coupled with the still low public understanding of renewable energy. This leads people to think that renewable energy is an unprofitable business, making it difficult to obtain financing. Sharia financing can be one of the financing options for renewable energy projects. Many sharia financial instruments have the potential to support renewable energy, from sharia banking financing, sharia capital market, to *Zakat*, *Infaq*, *Shadaqah*, and *Waqf* (ZISWAF) instruments. This is also in line with the main strategy in the masterplan which is to encourage the establishment of a national halal fund. Therefore, an attractive sharia financing scheme is needed as well as government support in the form of incentives to support renewable energy projects financially.

Third, conduct research and publication on renewable energy and potential collaboration with other industries in the halal value chain that can be perceived in Indonesia, especially halal tourism. Research and innovation are urgently needed in the renewable energy sector. Energy sources can come from a wide variety. For example, power plants derived from garbage and animal excrement in the United States. This is very



beneficial not only to reduce waste and dirt, but can be used as a source of energy and provide added value to the economy as a whole.

4. Conclusion

The urgency of the availability of renewable energy and the implementation of sharia economy and finance, actually has a spirit that is in line with the efforts of the global community in supporting the achievement of sustainable development. Islamic economic and financial practices in Indonesia can actually give its role in realizing the program. Based on the description of the discussion mentioned above, it can be concluded several things. *First*, the Islamic financial sector can be one solution to the problem of the lack of availability of financing instruments in accordance with EBT investment needs. Through various sharia-based financing with various schemes, the Ecosystem of Sharia financial industry can contribute to be one of the supporting factors in achieving the EBT target that has been set. *Second*, with the optimal utilization of EBT in Indonesia, the energy results become the support and spearhead of the halal industry, among others: halal food and beverages, Muslim fashion, halal tourism, halal pharmaceuticals and cosmetics and halal media and recreation. Especially in the halal tourism industry, Indonesia can synergize EBT production sites into one of the green tourism-based tourism destinations. As previously stated, one of the largest energy users is from the industrial sector. Synergy of renewable energy utilization by sectors in the halal industry ecosystem can support long-term sustainable economic improvement. *Third*, EBT financing can be done with the concept of *ta'awun* and *jāriyah* through crowd funding to mobilize Indonesia's waqf potential of Rp. 60 trillion for social programs as well as community empowerment, especially in the aspect of environmental protection. *Fourth*, in order to optimize the synergy between renewable energy programs and sharia economy, some steps and Quick Wins programs that can be done are: (1) campaigns against the excellence of renewable energy to achieve national energy self-sufficiency; (2) create easy access and attractive financing schemes to support renewable energy; (3) conduct research and publication on renewable energy and potential collaboration with other industries in the halal value chain that can be perceived in Indonesia, especially halal tourism.

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