

Green Energy for Green Economy: The Case Study of Kurdistan Region of Iraq (KRI)

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Received: October 3, 2017 Accepted: November 14, 2017 Online Published: December 1, 2017

doi: 10.23918/ijsses.v4i3p107

Abstract: Green economy is an overarching purpose for sustainable growth and friendly environment. Renewable energy focuses on clean energy and sustainable development targets a continuous growth. Green economy includes both of them. Kurdistan Region of Iraq (KRI) struggles serious problems in terms of economics after showing a remarkable economic growth until mid-2014. The increasing gap between demand and supply is seen another serious problem for KRI. Green energy is one of the essential stage towards the green economy and it is one of the vital issue to succeed on the way of green economy. Solar energy is one of the fastest growing renewable energy source around the world and KRI has a great potential for solar energy. This study aims to stimulate KRI to invest green energy and encourage it to establish green economy to make its economy robust for the shocks and enable to show a sustainable development.

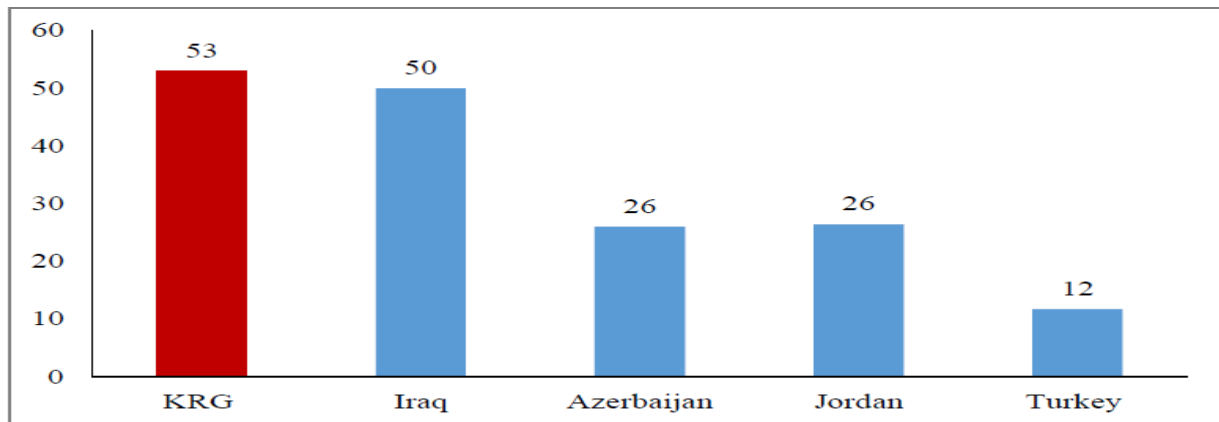
Keywords: Green Economy, Green Energy, Kurdistan Region of Iraq, Solar Energy

1. Introduction

Green economy was started to use by Pearce, Markandya, and Barbier in 1989 to refer sustainable development and its implications to the economy. Nowadays green economy is mainly used to state the economic situation that promotes the community lives in ways consistent growth and sustainable development. Barbier (2011) states that green economy promotes energy efficiency, sustainable development, and innovates the technologies for clean energy. One of the differences between green economy and sustainable development is about caring environment and social well-being. Green economy aims to succeed sustaining and advancing economy without harming the environment. Bina (2013) tried to answer the question about what the meaning of green economy and its implications. He finalized the answer in the different categories that are i) scarcity and limits, ii) means and ends, and iii) reductionism and unity. However there is no internationally agreed definition for green economy among the academicians.

Kurdistan Region of Iraq (KRI) is struggling a series of unpredictable challenges. The relation between KRI and central government of Iraq, its neighborhoods-Turkey and Iran-, and its own internal politics are all including a great disturbance and uncertainty. There are huge conflicts about sharing the revenue

of petrol and natural gas between Kurdistan Regional Government (KRG) and Iraqi central government. Kurdistan economy has been facing serious problems since mid-2014 due to the problem with central government of Iraq. Humanitarian crisis due to the influx Syrian refugees causes another big challenge for KRG economy. These problematic conditions are the main reasons that weaken its economy and deep fiscal crisis. The conflicts especially with central government of Iraq causes a serious fall in revenue and the fall in the revenue resulted postponing projects and cut in the salary of the employment working in public sectors.



Sources: KRG Labor Force Survey; and ILO ILOSTAT database.

Figure 1: Public sector employments (as percentage of labour)

KRI economy is mainly based on the government's expenditures and according to World Bank the government's expenditures to GDP ratio is fifty percent and fifty percent of all employers in KRI is working for KRG. Taxation is one of the important sources of revenue among the developed and developing countries however it is almost five percent of the total revenues for KRI.

2. Green Economy

It can be seen that some countries showed a remarkable development in terms of implications for green economy as Hamdouch and Depret (2010) stated in their study. Cai and et al. (2011) studied the relationship between green economy and its impact to the job market in the green job. They concluded that the policies from 2006 to 2010 resulted in 472 thousand net job. Pollin, Garrett-Peltier, Heinz, and Schorber (2008) claim that green economic recovery program could create two millions jobs in USA in the short-term.

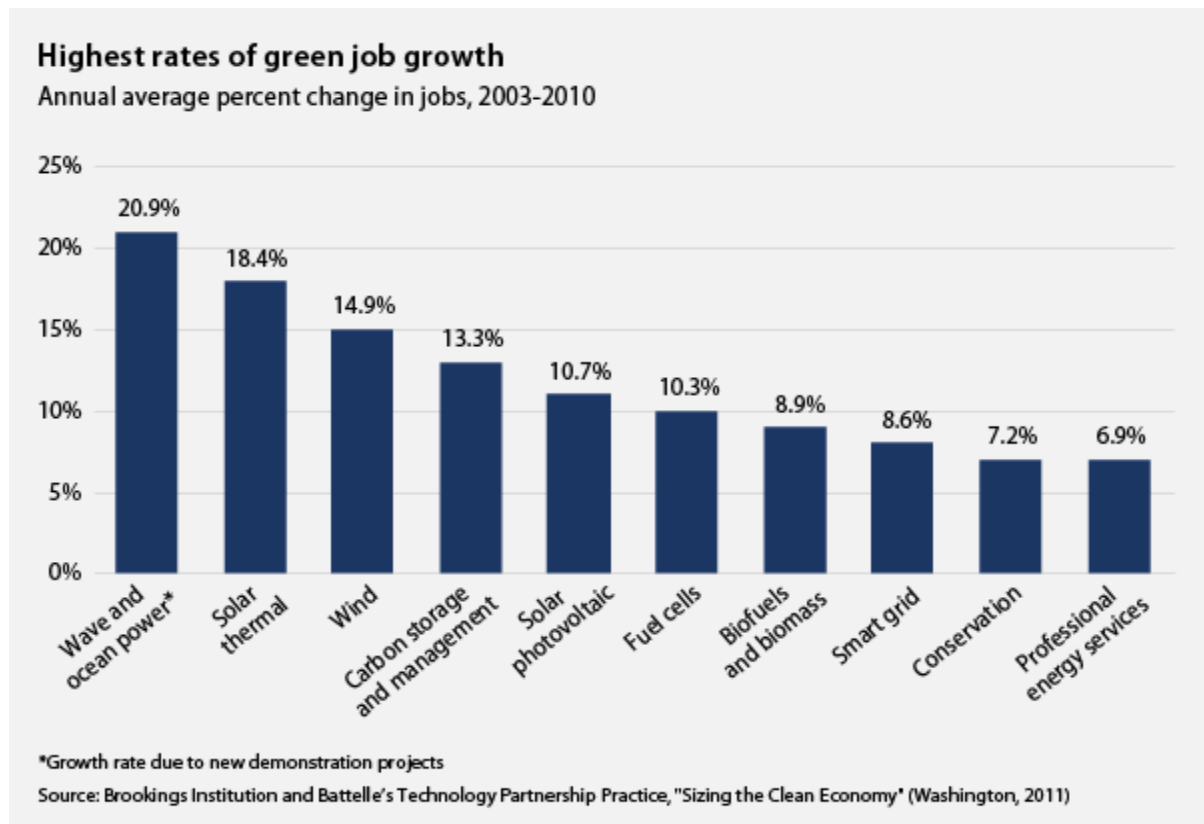


Figure 2: Highest rates of green jobs

Borel-Saladin and Turok (2013) examined the relationship between green economy and jobs in South Africa. They argued that it is possible to reach a remarkable growth and friendly environment. South Africa suffers due to the high unemployment rate and they suggested green economy as a solution for this problem and they estimate that green economy could create minimum 300,000 jobs by the year 2020. Rutovitz (2010) also claimed that green economy will stimulate the growth and create thousands of jobs for South Africa. He estimated that 78,000 direct jobs and much more than 78,000 indirect jobs would be created in the short-term by green economy.

3. Green Energy

Higgins (2013) stated that the balance between economic growth and sustainability and the coexistence of them have to be established. She believes that living standards for many countries, usage of energy, and population growth will be depended on this balance. Developing alternative energy sources will not be enough to stimulate the growth according to Higgins.

Green energy is seemed one stage of the green economy so the motivation should not be only for environmental attitudes. Green energy projects should be considered as a one part of the sustainable growth for the economy. UN Environment published a report in 2011 for Jordan to identify sectors

including energy and green economic initiatives and infrastructure. It is given in the same report that 2.1 million jobs in wind energy sectors and 6.3 million jobs in solar energy sectors could be created by 2030.

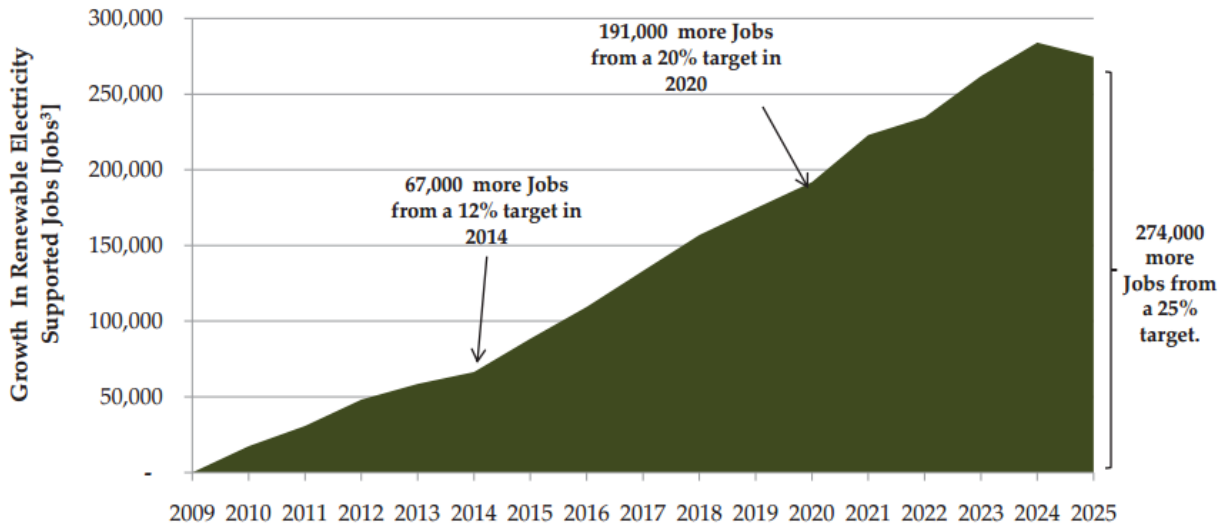


Figure 3: Renewable electricity employment in USA

Source: NCI, December 2009

KRI has performed a significant growth from 2006 to mid-2014. During this period more than 40 billion US dollar invested to the region and foreign investment reached to 5 billion US dollar at the same period. 2014 is the starting of the problems in KRI. The Iraqi Federal Government withheld the KRI's shares of national revenue in 2014 and at the same year there was a dramatic fall in oil prices due to the increasing gap between demand and supply of oil in the world. Since KRI has limited resources apart from the share of national revenue in Iraq and huge number of refugees and displacement people caused a budget deficit. Although there is a remarkable fall in revenue the burden due to the salary of public employers and subsidies especially electricity remain same. Salaries, pensions and subsidies are almost half of the government's expenditures according to the report by World Bank in 2016. The report also states that despite the costly way of producing electricity by using liquid fuels low tariffs were applied in KRI. Technical and commercial losses in producing and transporting electricity are other problems in terms of electric supply.

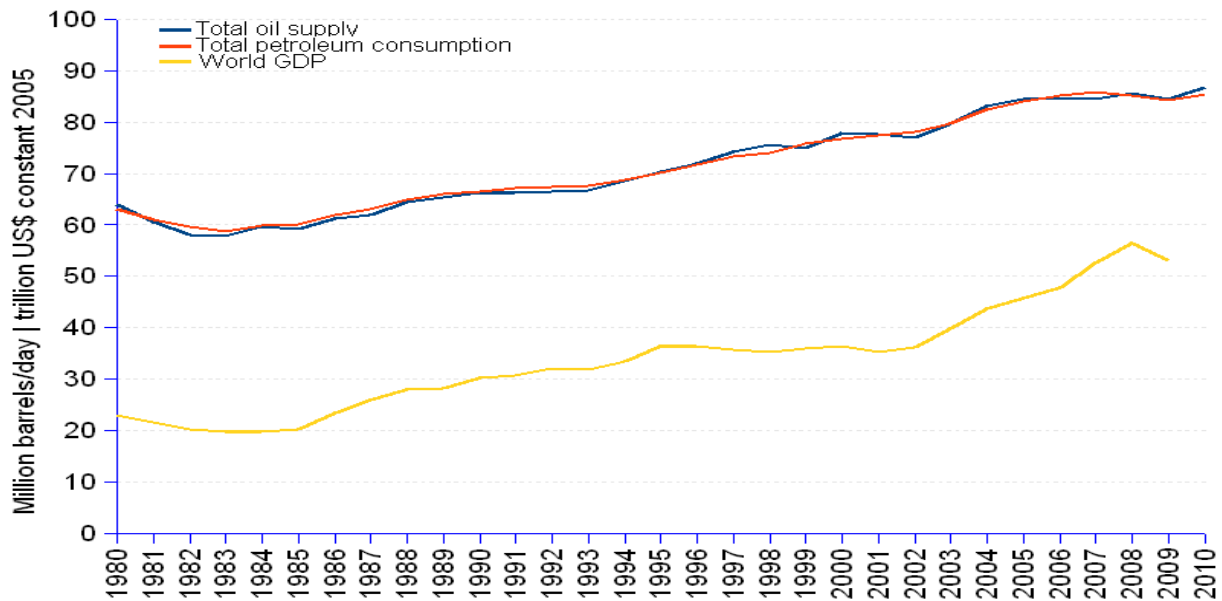


Figure 4: World oil consumption and supply

Source: EIA - Energy Information Administration and World Data Bank - The World Bank

The KRI's Ministry of Electricity estimates that the demand for electricity will increase 15 percent per year till 2019. Growth in the population and economic development are the main reasons for the trend in increasing demand. KRI clearly needs a new policy and robust program for the energy supply. Renewable energy is becoming more important for the energy demand and preventing fiscal crisis in Kurdistan. Barbier (2011) argues that translating the implications into policy is one of the vital issue to achieve sustainable development. So the well-designed policy will be the main indicator to succeed the policy on the ground.

4. Solar Energy

Renewable energy and energy efficiency are seen essential for the sustainable growth in green economy. Solar energy is one of the fastest growing source of renewable energy globally. It is second largest job market in the USA. Solar energy was an expensive way of producing electricity 40 years ago. However new technological improvements make enable this technology cheaper to install. As it is seen from the figure 5, the price of a solar panel per watt was \$101.05 in 1975 on the other hand there is a very dramatic fall after that and the price of a solar panel per watt decreased to \$0.61 in 2015. The drop in the cost of solar panels resulted an enormous increase in the production of electricity by using this technology.

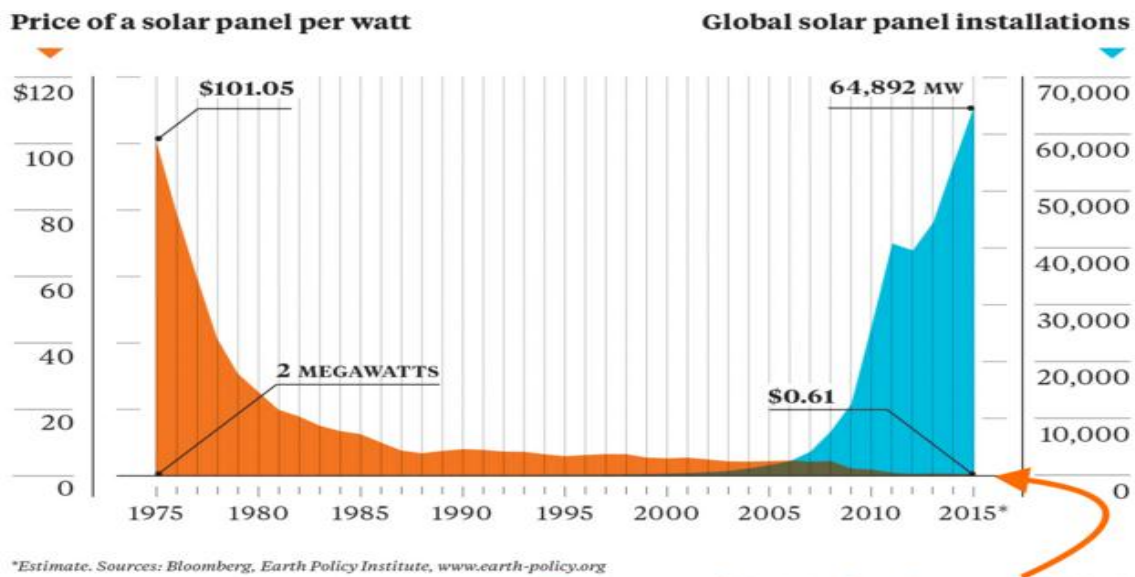


Figure 5: Global solar panel installation and price of solar panel per Watt

Although KRI has a great potential for solar energy there is no investment in this sector. Average total sunny days in Erbil/KRI are 315 days. This statistics shows that Erbil city is one of the richest city in terms of sunny days around the world.

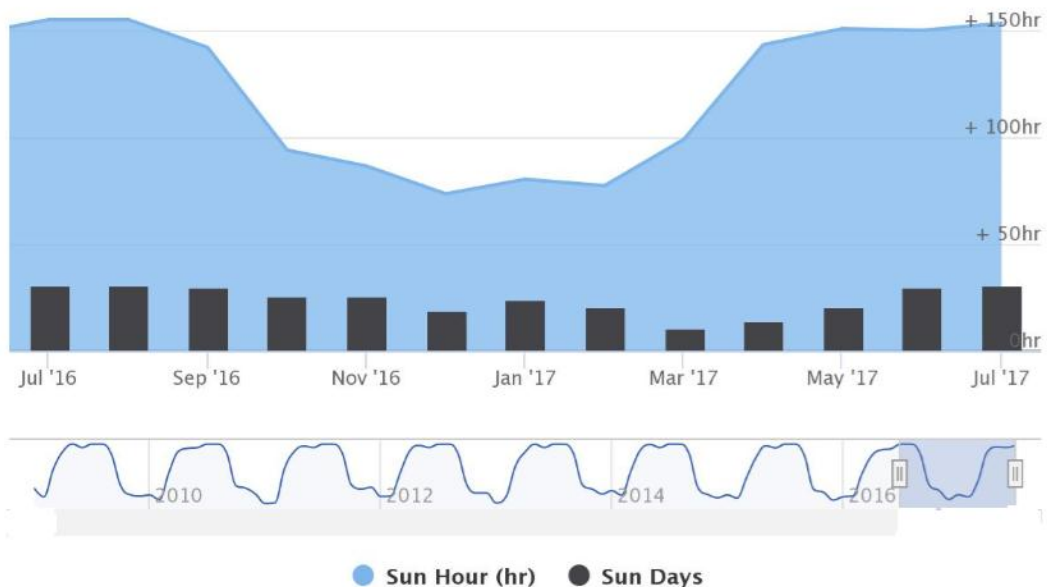


Figure 6: Sunny days and hours in Erbil

Source: worldweatheronline.com

Poor service and poor supply in the production of electricity in KRI remain as a problematic issue for the region. The difference between demand and supply of electricity in the region is increasing annually. The gap in the demand and supply is filled by the mostly private generators run by the fuel oil.

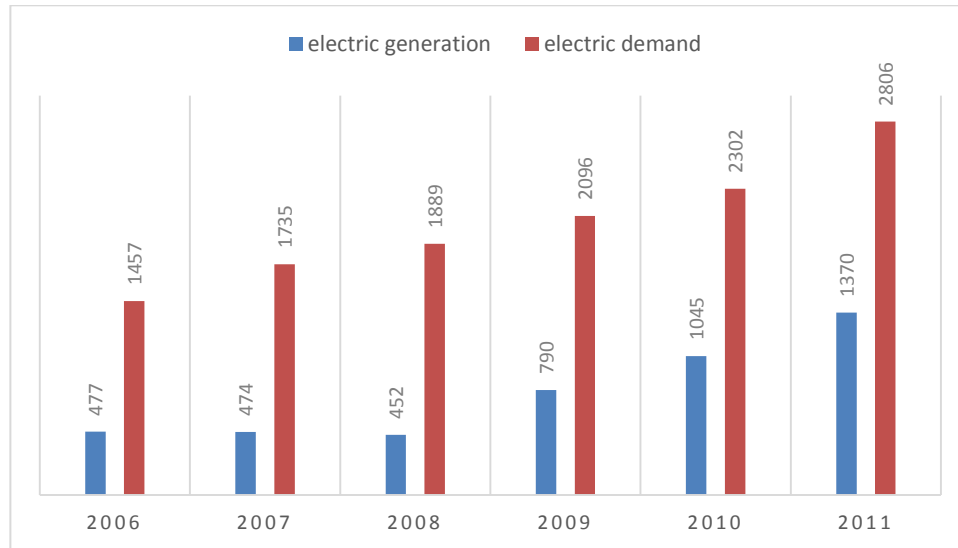


Figure 6: Supply and Demand of Electricity in KRI (in terms of megawatt)

Source: Ministry of Electricity in KRI, 2012

5. Conclusion

Green economy is a concept that focuses sustainable development, poverty reduction and transforming economic activities for social well-being. It aims to create investments which are at the same time friendly to the environment. Green energy is one of the stage in the green economy. Renewable energy is seen one of the vital issue in the path of the green economy to succeed the sustainable development. In addition, solar energy is getting more popular among the renewable energy source globally. The technological improvements resulted in a dramatic decrease in the cost of the solar panel per watt. This stimulated the sector and caused the second biggest source of renewable energy.

Kurdistan Region of Iraq is suffering due to the conflicts with its neighborhoods, Iraqi Central Government, refugees, terrorism, and war. They performed a remarkable growth till mid-2014 however the dependence of revenue to oil and Iraqi Central Government are making its economy fragile to the shocks. Furthermore the gap between demand and supply of electricity and the costly way of producing electricity with low tariffs are seen another big challenge for KRI. Although region has a big potential for solar energy there is no investment in this field. KRI can use its big potential to produce electricity by using solar panel which is essential for the green economy that aims a sustainable development.

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