

# CHAPTER I

## INTRODUCTION

### 1.1. Background

The use of energy as one of the global commodities in the process of economic growth and development is not only important but very influential. Like other economic growth factors such as capital, human resources, etc., energy development is also an important determinant of economic growth and development (Chontanawat et al, 2006).

Energy development means increasing the availability of energy not only in terms of quantity but also quality. Energy can be formed as fuel, electricity, etc. that had been used by the society in order to support daily live activity. Energy is also used in industry, agriculture, mining, service industries, including transportation and information technology. Eventually, the lack of energy that tends to be consistent, cheap and permanent always becomes an obstacle to social economic development. History records tracked that people used energy from labors (Human Power) or animals for energy, but gradually with the development of electrical technology replaced traditional sources of energy. In this modern era, energy cannot be eliminated, because energy is needed for many purposes such as cooking and heating (Azam, et al, 2015).

According to Chontanawat et al (2006) energy plays an important part in the economic system in terms of demand and supply. Where from the demand side, energy is an important product for consumers, they buy it to maximize satisfaction. Whereas from the supply side, energy is an important factor of production as an

addition to capital, labor, and raw materials, and also acts as a major part of economic and social growth in rural areas.

The alarming fact at the moment is that billions of people do not have access to energy services, electricity, and basic cooking facilities and the worst case scenario, this circumstance has only held very few changes in the next 20 years, which actually worsened in several ways. (Kaygusuz, 2002). This is related to the unavailability of resources in generating energy, expensive energy prices, and also increasing demand for energy that is not in accordance with energy availability.

Indonesia which is noticed as a country that has abundant natural resources is inseparable from the energy availability problem. Energy consumption of Indonesia has increased almost every year even though the increase in the level is not drastically increased. Evidenced proved by the data obtained where energy consumption in 1970 was 296,897 kg while in 2017 energy consumption reached 897,023 kg. In the period of 47 years Indonesia's energy consumption has increased almost 2 times started since 1970, but there have been several times the decline in energy consumption in Indonesia. 1997 to 1998, Indonesia experienced a significant decline. This happened because of the economic shock that occurred in 1998. So that not only the energy consumption experienced a decline but almost all sectors existed.

The most energy consumption is in fuel oil, followed by coal, electricity, gas, and biomass. Whereas based on the most energy consumption come from the industrial sector which is then followed by transportation, and households, this is in line with the process of economic development.

Increased energy consumption in Indonesia is accompanied by an increase in Gross Domestic Product (GDP) where Indonesia's GDP over the past 47 years has increased more than 2 times, namely 9150684931.51 in 1970 to 1015539017536.50 in 2017. 1998 became the only year in which GDP decreased. This shows a positive correlation between GDP and energy consumption in Indonesia. Whereas in other countries such as Germany, the United Kingdom, and the USA the increase in GDP is not always accompanied by an increase in energy consumption. Energy consumption will continue to increase until a certain year and then there will be a decline in the following year which causes the graph of energy consumption and GDP to intersect (Ajmi et al, 2013).

Energy consumption is closely related to the pollution produced. In the early stages of economic development, the pollution produced is not small, but over time, economic development increases, pollution decreases. The increase in energy consumption in Indonesia, which almost reaches 2 times of the number, is not accompanied by an increase in pollution that is so large. Although pollution in Indonesia has an increasing trend, the increase has not exceeded 0.2 in the past 30 years.

The excellent economic growth will strive to produce a lot of output both for consumption and for export purposes, to meet the output target that is produced, the production factors that are input into the production process are needed, one of which is energy. Energy is one of the important inputs in the production process, the more output targets are produced, the more energy demand will increase so that economic growth can also increase consumption or energy needs.

Considering that energy is a variable that holds an important role in economic growth and development, decision making in the exploration of existing resources is certainly a consideration for policymakers. Not only considering the benefits but also the consequences must also be considered. This makes researchers interested in conducting this research and want to prove the demand of energy has significant impact on economic growth.

## **1.2. Research Problem**

When income increases, the demand for a product also increases. This also occurs in energy demand. The increase in GDP is accompanied by an increase in energy consumption in Indonesia. However, some countries such as Germany, the United Kingdom, and the USA are in fact the opposite where an increase in GDP is not accompanied by an increase in energy consumption. By looking at these problems, the formulation of the problem of this research is how does economic growth affect energy demand in Indonesia?

## **1.3. Research Objective**

Based on the formulation of the problem above, the objective to be achieved in this study is to analyze the effect of economic growth on energy demand in Indonesia.

#### 1.4. Research Advantages

The benefits of this research are as follows:

1. Academically the research results are expected to be able to contribute to strengthening the previous research, as well as adding information and donations as well as study material for further research.
2. Practically as input for decision makers in this case which is the government in order to maximize the resources available in Indonesia, especially water in the provision of energy for the community.
3. Empirically as a reference for further research in order to deepen and correct deficiencies in research.

