Putting Resources into Adjoining Nations for Power Age

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Introduction

The majority of the country's economic activities are largely powered by electricity. As of January 2017, Bangladesh's installed capacity for producing electricity, including captive power, was 15,351 MW, and in 2018, it was 20,000 MW. According to official sources, the country's power sector has experienced rapid expansion in recent years, with electricity currently being accessible to 80% of the population. The steady rise in GDP over the past few years is driving this demand. To meet this rapidly increasing demand, the government of Bangladesh has implemented a number of projects. To meet the challenges in the energy sector, new policies have been developed. The Power System Master Plan (PSMP 2010) includes a long-term strategy for producing electricity in response to demand up until 2030. According to the plan, the required generation capacity will be 24,000 MW, while the demand is 20,000 MW, and the required generation capacity in 2030 will be 40,000 MW, while the demand is 33,000 MW. However, it has not been possible to meet the growing demands with any degree of success up until this point. Inadequate indigenous resources, poor planning, and unreliable policies and decisions regarding the development of the power sector are increasing the gap between the projected demand and actual demand. Bangladesh, like many other developing nations, is struggling to provide its citizens and industries with an energy supply that is affordable, dependable, and equitable.

Description

In this case study, it was tried to study on whole power scenario of Bangladesh including generation and demand. A details study on power plants of Bangladesh and power crisis of Bangladesh has been discussed. Our main objective is to provide a genuine power scenario of Bangladesh and calculate the upcoming demand by 2030 which will be followed by some recommendations through which the Power sector of Bangladesh can improve. For decades, load forecasting has been studied in order to predict future demand. Accurately predicting the magnitudes and geographic locations of electric load over various planning horizon periods is necessary for this. Forecasting electricity demand is regarded as one of the most important aspects of the economic operation of power systems. According to Bunn and Farmer, electric utility companies stand to benefit greatly from accurate load forecasting. When load forecasting is used to control operations and make decisions like economic dispatch, unit commitment, fuel allocation, and on-line network analysis, the greatest savings are possible. According to authors, forecasting errors (positive or negative) result in an increase in operating costs. This section of the research is necessary to establish the statistical relevance of the proposed work, formulate a broad research question, evaluate current methods, and investigate potential areas for improvement.

Forecasting the load influenced by a variety of factors, including meteorological effects, per capita growth, electricity prices, economic expansion, and so on, is a common application of Multiple Regression. The least-square estimation method is utilized in Multiple Regression analysis for the purpose of load forecasting. The data analysis program can select the Polynomial degree of influence of the variables. The purpose of the statistical technique known as regression analysis is to investigate the strength of the relationship that exists between one or more of the changing variables that are referred to as independent variables or explanatory variables and a single dependent variable known as the respond variable. It is a potent method that constructs a model that aids in predicting the value of the dependent variable by utilizing values derived from historical data for one or more variables. There are two dependent variables and one independent variable in this GDP-based demand forecast calculation. Among the aforementioned techniques, multiple regression can solve this issue. Because of this, the multiple regression analysis method was chosen. The multiple regression model has a complicated and sensitive calculation method. To get the most accurate solution, high accuracy must be ensured. In these circumstances, manual procedures must be replaced with software that has been precisely programmed. Distributors and manufacturers can benefit from the advanced demand planning and inventory optimization provided by GMDH Streamline.

This product really consolidates present day arranging innovations and due systems with stock streamlining devices and gives vital and ideal data for direction. UBS (United Bible Societies), Respiratory Therapeutics Group, and others have confirmed the software's dependability. Since among many available software, GMDH is the most powerful of the sales forecasting system, it is used in this work for the calculation of multiple regression method. Bangladesh is moving forward to be an industrialized country. As a result, day by day the demand for electricity is increasing at a higher rate. So, to reach a solution to the electricity demand problem, at first it is needed to forecast the upcoming demand regarding GDP. For forecasting this demand where there are many methods, among them multiple regression analysis satisfies with the needed conditions. So, this method will be used in this paper to forecast the demand up to 2042 using the GMDH Streamline software. If a goal is set to ensure sustainable development, energy planning in a developing nation like Bangladesh is extremely difficult. Bangladesh's current low energy consumption has a significant impact on its development plan. Without nuclear power, there is no other option for addressing the power crisis because the gap between electricity generation and demand is widening on a daily basis. The decision to enter a long-term nuclear power program must be made by Bangladesh, not by other nations, if Bangladesh is to resolve its on-going power shortage issue and seek energy security. The BAEC and IAEA can deal with safety and safeguards issues [1-5].

Conclusion

There are two dependent variables and one independent variable in this GDP-based demand forecast calculation. Among the aforementioned techniques, multiple regression can solve this issue. Because of this, the multiple regression analysis method was chosen. The multiple regression model has a complicated and sensitive calculation method. To get the most accurate solution, high accuracy must be ensured. In these circumstances, manual procedures must be replaced with software that has been precisely programmed. Distributors and manufacturers can benefit from the advanced demand planning and inventory optimization provided by GMDH Streamline.

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